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55	ENTOMOLOGIE	
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SCIENTIFIC RESULTS
OF THE BELGIAN MOUNT CAMEROON EXPEDITION,
FEBRUARY — APRIL 1981.
VII: FAM. DELPHACIDAE, TROPIDUCHIDAE AND RICANIIDAE,
WITH NOTES ON THE ALTITUDINAL ZONATION
OF HOMOPTERA FULGOROIDEA ON MOUNT CAMEROON

BY

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(With 76 textfigures)

INTRODUCTION

This paper deals with the Delphacidae, Tropiduchidae and Ricaniidae from Mount Cameroon and its surrounding areas, and is a follow-up to a previous paper (Van Stalle, 1982) in which other Fulgoroidea are listed. In all, 20 species are represented in this paper, 11 of which are new to science. The material dealt with below is deposited in the collections of the Koninklijk Belgisch Instituut voor Natuurwetenschappen (I. G. n° 26.449).

FAMILY DELPHACIDAE

The Delphacidae represent the largest African Fulgoroidea family and are at present very little known. This is probably due to their small size and the richness of closely related forms which are difficult to classify. The African Delphacid fauna has previously been studied by F. MUIR and R. G. FENNAH. Additional notes have been made by C. STAL,

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L. MELICHAR and W. L. DISTANT. The majority of the species are known from localities in South Africa, Senegal, the Sudan, Nigeria and Madagascar, and so far only from the Cameroon six species have been listed, namely :

Hapalomelus flavipes STAL 1855

Afrosydne lupias FENNAH 1969

Asiracina micraulax FENNAH 1963

Toya demophoon FENNAH 1963

Eripison illex FENNAH 1969

Nycheuma sectator (FENNAH 1963)

In this paper, 13 more species are added to the list of the Delphacid fauna of that country, from which 11 are new to science. This relatively high number of new species is probably due to the fact that little is known of African Delphacidae and that endemic species occur on the mountain.

All measurements given in this paper are according to FENNAH 1963. The teeth on the post-tibial spur (calcar) are given as $x + 1$, because the apical tooth is often greater, and stand apart from the other teeth.

Genus *Eurysa* FIEBER

Eurysa fastigiorum n. sp.

(Figs. 1 to 5)

Material examined. — Holotype ♂ — Mount Cameroon 2100 m, 27-II-1981.

Paratypes. — 1 ♂ 1 ♀, Mount Cameroon 1200 m, 24-II-1981, on light (HPL-125 W); 2 ♂ 3 ♀, Mount Cameroon 1200 m, 11-III-1981; 2 ♂ 1 ♀, Mount Cameroon 1200 m, III-1981, Malaise trap; 1 ♂ 4 ♀, Mount Cameroon 1300 m, 25-II-1981; 1 ♂ 1 ♀, Mount Cameroon 1300 m, 16-III-1981; 1 ♂ 4 ♀, Mount Cameroon 1900 m, 5-III-1981; 2 ♂ 3 ♀, Mount Cameroon 2100 m, 27-II-1981; 3 ♂, Mount Cameroon 2100 m, 23-III-1981.

Description. — Vertex as broad as long, lateral margins parallel, apex as broad as base, anterior margin convex, median carina not prominent (fig. 1). Submedian carinae meeting at apex but almost disappearing at point of union. Frons longer along median line than broad at widest part (1,6:1), lateral carinae slightly convex, median carina simple (fig. 2). Clypeus shorter than half the length of the frons, almost as long as broad (1:1,1). Basal segment of the antennae as long as broad, second segment

more than twice as long as first (1:2,3). Pronotum tricarinate, lateral carinae straight and diverging basally, curved inwards distally and almost reaching posterior margin. Mesonotum tricarinate, carinae subparallel. Metatarsus shorter than tibia (1:0,8), first metatarsal segment longer than half the length of metatarsus (1:0,6), with seven spines apically, second segment with four spines apically. Calcar without teeth.

Frons, clypeus, vertex and pronotum yellowish brown, mesonotum yellowish with brown traces laterally. Macropterous and brachypterous specimens present, tegmina hyaline, veins concolorous, except for apical veins, which are brown. Abdomen reddish-brown, legs yellowish.

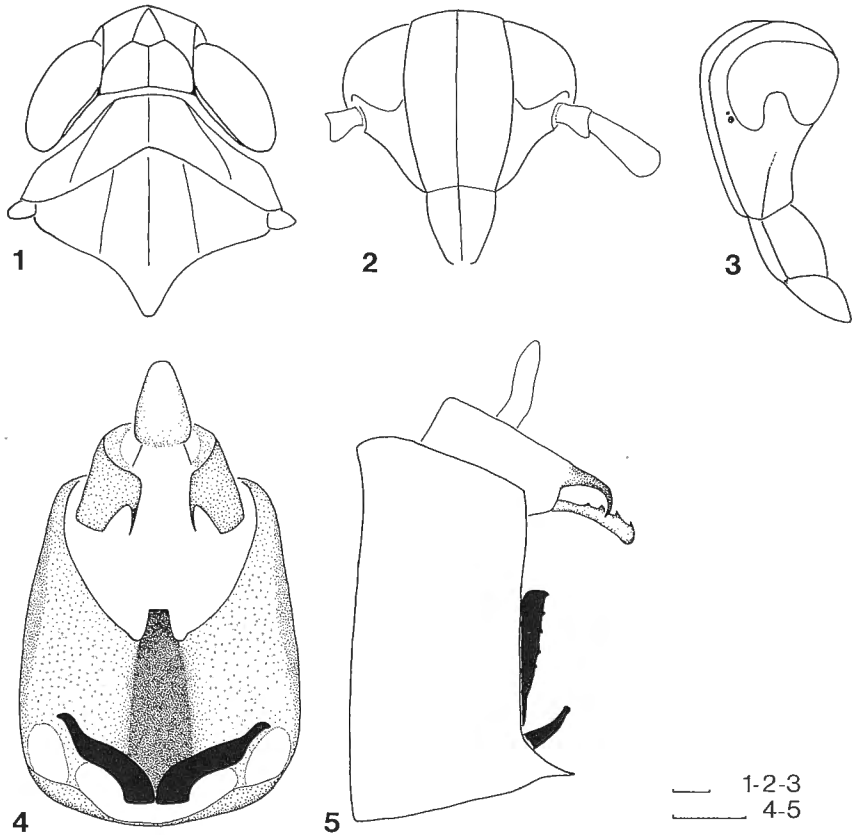


Fig. 1 to 5. — *Eurysa fastigiorum* n. sp.
 1 : head, pronotum and mesonotum, dorsal view; 2 : frons and clypeus, frontal view;
 3 : head, lateral view; 4 : pygofer, posterior view;
 5 : pygofer and aedeagus, left lateral view. — scale : 0.1 mm.

Male genitalia : Anal segment short and ring-like, the lateroapical angles moderately far apart, with a spinose process curved ventrally. Opening of pygofer longer than broad (fig. 4), posterior lateral margins

straight, ending ventrally in two submedian blunt processes (fig. 5). Diaphragm U-shaped (fig. 4), a black stout quadrate process arising in middle, in side view elevated along median line and irregularly denticulated. Genital styles short, gently curved and narrowing distally, with a blunt apex. Aedeagus tubular and slender (fig. 5) with a row of minute teeth along its dorsal median line.

Length of body : 2.5 mm.

Diagnosis. — This species is related to *Eurysa nigrocacumenis* MUIR (known from South Africa) and *E. atramentaria* LINNAVUORI (known from the Sudan). It differs from it in the shape of the male genitalia.

Etymology. — The name « *fastigiorum* » is an allusion to the place where it was found.

Eurysa ornata n. sp.

(Figs. 6 to 11)

Material examined. — Holotype ♂ — Mount Cameroon 2800 m, 6-III-1981.

Paratypes. — 1 ♂, same locality; 1 ♂, Mount Cameroon 2800 m, 24-III-1981; 1 ♂ 1 ♀, Mount Cameroon 2300 m, 6-III-1981.

Description. — Vertex as long as broad, lateral carinae parallel (fig. 6); apex as broad as base, convex, and median carinae not prominent; submedian carinae uniting before apex. Frons longer than broad medially (1.7:1), lateral carinae convex, with broadest part in middle (fig. 7). Median carina simple. Clypeus as broad as long, shorter than half the length of the frons (1:0.4); blemma present just above the ocellus (fig. 8). Antennae with first segment as long as broad along the widest part, second segment more than twice as long as first (1:2.3). Pronotum tricarinate, the lateral carinae strongly diverging distally and not reaching the posterior margin. Mesonotum tricarinate, the lateral carinae diverging posteriorly. Metatarsus almost as long as tibia (0.8:1), first metatarsal segment with seven spines apically, half the metatarsal length. Second metatarsal segment with four spines. Calcar without teeth.

Colour of frons, clypeus and anterior part of the vertex reddish-brown. Basal compartment of the vertex, the pronotum, mesonotum and legs yellowish. Some indistinct brown traces on lateral parts of pro- and mesonotum. All specimens brachypterous, tegmina hyaline. Abdomen more or less brown with yellow markings, pygofer dark brown.

Male genitalia: Anal segment short, ring-like, lateroapical angles not reaching median line, each with a small tooth directed dorsally. Pygofer (fig. 9) long and tubular, much broader than high. In dorsal view, the

pygofer has a U-shaped incision with the dorsolateral angles acuminate and directed medially. In lateral view (fig. 10), the posterior lateral margins are strongly convex. Diaphragm with ventral margin straight. Genital styles lanceolate with an acuminate apex and a second moderately long spinose process arising from base and directed dorsally. Aedeagus (fig. 11) rather short, apically ornamented with a row of minute teeth.

Total length : 2.5 mm.

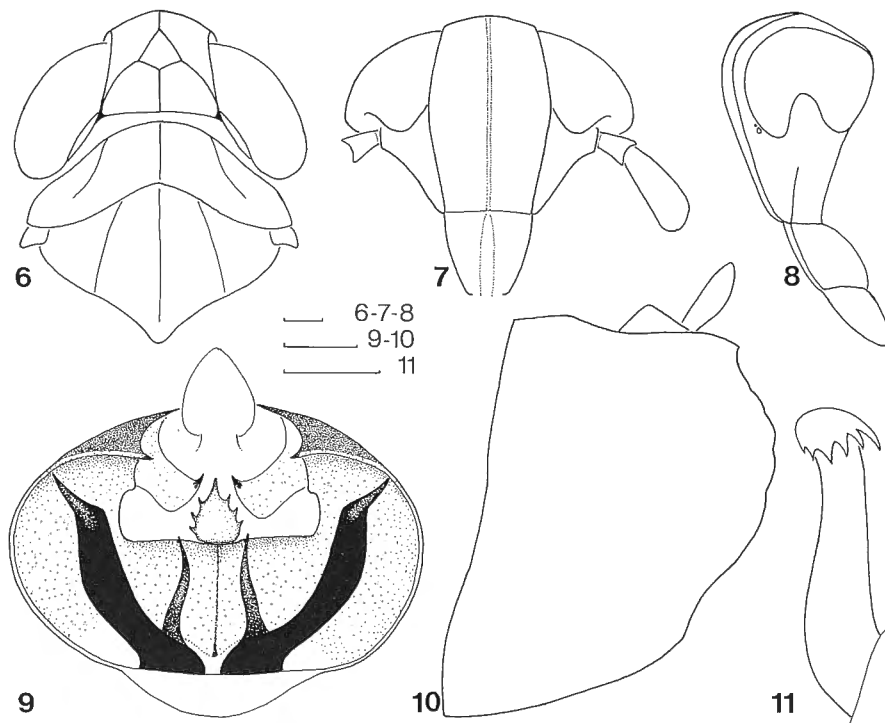


Fig. 6 to 11. — *Eurysa ornata* n. sp.

6 : head, pronotum and mesonotum, dorsal view; 7 : frons and clypeus, frontal view;
8 : head, lateral view; 9 : pygofer posterior view; 10 : pygofer, left lateral view;
11 : aedeagus, right lateral view. — scale : 0.1 mm.

Diagnosis. — This species is related to *Eurysa atrata* MUIR (known from South Africa) and *Eurysa gyllipus* FENNAH (known from the Sudan). It is closely related to the first, from which it differs in the longer spinose processes of the genital styles and in the shape of the anal segment; the aedeagus was not figured by MUIR.

Etymology. — The name « *ornata* » is an allusion to the ornamentation on the apex of the aedeagus.

Genus *Hapalomelus* STAL*Hapalomelus onytes* FENNAH

(Figs. 12 to 14)

Hapalomelus onytes FENNAH R. G., 1969, Acta Ent. Fenn., 26, p. 36, Figs. 101-107.

Material examined. — 1 ♂ 1 ♀, Mount Cameroon 1200 m, III-1981, Malaise trap; 1 ♂, Mount Cameroon 1300 m, 26-II-1981; 1 ♀, Mount Cameroon 1400 m, 26-II-1981; 2 ♂, Mount Cameroon 1600 m vhf-track, 21-III-1981.

This species was described from a mutilated specimen (Sudan, Equatoria, Yambio) and the antennae were partly missing. It is distinguished from all other Araeopids by the unusual proportions of the antennae: the first segment is yellow and about eight times as long as broad, and reaches up to the apex of the clypeus. The second segment is dark brown and shorter than the first (1:0.8). All specimens are macropterous (tegmina shown in fig. 13). All males found on Mount Cameroon have an asymmetrical anal segment (fig. 12), because the spinose process on the right apical angle is missing. This character is not presented in the descriptions and drawings by FENNAH (1969).

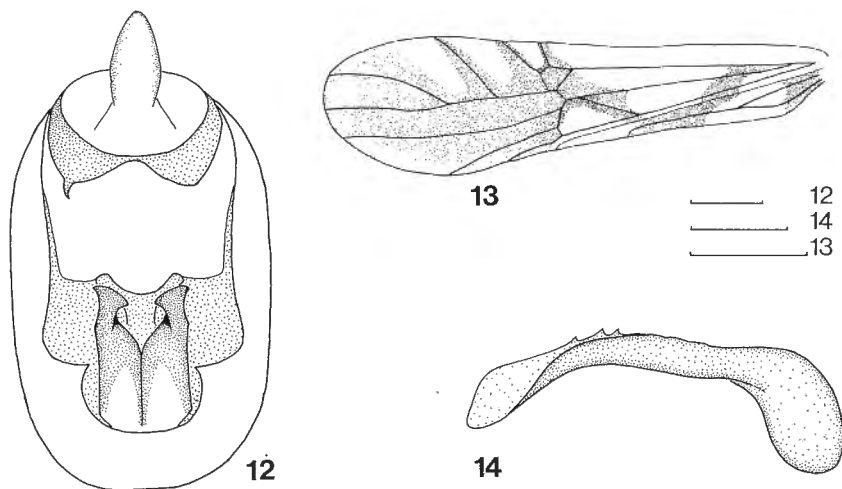


Fig. 12 tot 14. — *Hapalomelus onytes* FENNAH

12: pygofer, posterior view; 13: left tegmen;

14: aedeagus, right lateral view. — scale fig. 12, 14: 0.1 mm; fig. 13: 1 mm.

Genus *Peregrinus* KIRKALDY*Peregrinus iocasta* (FENNAH)

Hagamiella iocasta FENNAH, R. G., 1958, Bull. I. F. A. N., XX(2), p. 489, figs. 5, 12-15.

Material examined. — 1 ♀, Mount Cameroon 1200 m, III-1981, Malaise trap.

This species is known from Guinea, Guinea-Bissau (FENNAH 1958) and Uganda (FENNAH 1969).

Genus *Thriambus* FENNAH*Thriambus strenuus* n. sp.

(Figs. 15 to 21)

Material examined. — Holotype ♂ — Mount Cameroon 1200 m, III-1981, Malaise trap.

Paratypes. — 1 ♂, same locality; 1 ♂, Mount Cameroon 1200 m, 24-II-1981.

Description. — Vertex broader than long (1:1.2), slightly narrowing to apex (fig. 15); submedian carinae converging apically, meeting on frons. Frons (fig. 16) longer than broad at widest part (1.7:1); Lateral carinae convex at level of eyes, straight and converging in lower part. Median carina bifurcate in upper part. Clypeus longer than broad (1.2:1), half as long as frons. Blemma present just above ocellus (fig. 17). Antennae with first segment almost twice as long as broad in widest part (1.9:1), second segment twice as long as first. Pronotum tricarinate, lateral carinae diverging basally and not reaching posterior margin. Mesonotum tricarinate the carinae subparallel. Metatarsus shorter than tibia (1:0.9), first metatarsal segment with eight teeth apically, more than half as long as metatarsus (1:0.6); second metatarsal segment with four teeth apically. Calcar with 43 + 1 teeth.

Head and pronotum reddish-brown. Frons and genae with a series of pale spots as figured (fig. 16). Mesonotum yellowish, carinae and tip of the mesonotum paler. All specimens macropterous, tegmina (fig. 21) more or less fumated with brown; the cubital cell, the membrane, and a spot on the commisural suture near the apex of the common claval vein are dark brown. Abdomen dark brown; legs yellowish.

Male genitalia: anal segment short and ring-like, lateroapical angles set far apart from median line, produced in a small tooth directed ventrally. Pygofer (fig. 19) short, opening a little higher than wide, dorsolateral

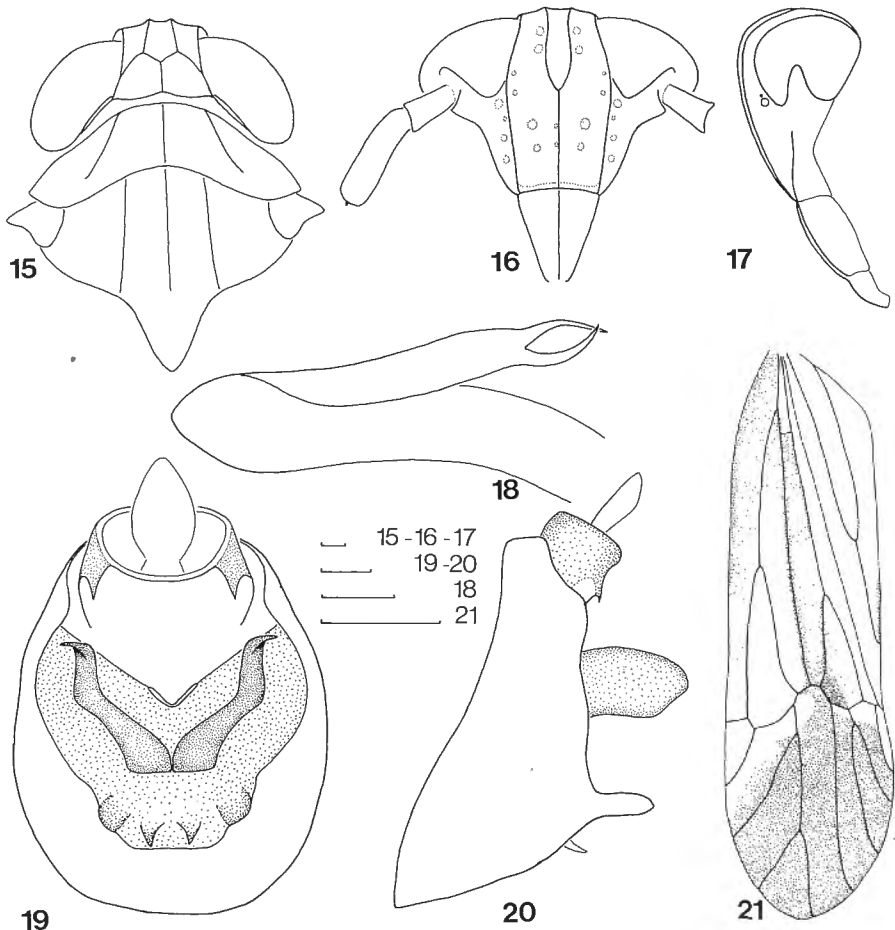


Fig. 15 to 21. — *Thriambus strenuus* n. sp.

15 : head, pronotum and mesonotum, dorsal view; 16 : frons and clypeus, frontal view; 17 : head, lateral view; 18 : aedeagus, right lateral view; 19 : pygofer, posterior view; 20 : pygofer, left lateral view; 21 : left tegmen. — scale figs. 15 to 20 : 0.1 mm
fig. 21 : 1 mm.

angles broadly convex and gently curved into posterior lateral margins, which are straight, and ending in a blunt lobe (fig. 20). In ventral view, two more small teeth are present on each side of the median line between the two lobes. Diaphragm shallowly V-shaped, pinched into a small lobe at middle (fig. 19). Genital styles rather long, strongly diverging basally and curved in middle, abruptly and strongly recurved outwards apically and tapering to a blunt point. Aedeagus (fig. 18) long and laterally compressed, a broad flagellum arising from apex directed dorsocephally and terminating in two short spinose processes.

Length of body : 4 mm.

Diagnosis. — This species belongs to the genus *Thriambus* FENNAH because of the proportions of the head and antennae, and the genital structure. It is closely related to *Thriambus ephorus* (FENNAH) (known from South Africa), *Thriambus nicias* (FENNAH) (known from Senegal, the Sudan, and Guinea-Bissau) and *Thriambus levis* n.sp. It is distinguished from these species by the form of the aedeagus.

Thriambus levis n. sp.

(Figs. 22 to 26)

Material examined. — Holotype ♂ — Bombe, 13-III-1981.

Description. — Vertex broader than long (1:1.3), base slightly broader than apex, submedian carinae almost parallel and uniting on frons (fig. 22). Frons (fig. 23) twice as long as broad at the widest part, lateral carinae convex and weakly concave near vertex. Median carina forked just above middle. Clypeus longer than broad at level of frontoclypeal suture (1.3:1), about half as long as frons. Blemma present just above ocellus. Antennae with first segment twice as long as broad, second segment longer than first (1:1.6). Pronotum tricarinate, lateral carinae strongly diverging basally and not reaching posterior margin. Mesonotum tricarinate, lateral carinae weakly diverging posteriorly. Metatarsus shorter than tibia (1:0.8), first metatarsal segment with seven spines apically, more than half as long as the metatarsus (1:0.55), second metatarsal segment with four spines apically. Calcar with 32 + 1 teeth.

Head including antennae, pronotum and abdomen reddish-brown, a series of pale spots present on face as figured (fig. 23). Mesonotum more yellowish, laterally fumated with brown, keels paler. Legs with the femora reddish-brown, tibiae and tarsi yellowish; tegmina missing.

Male genitalia: Anal segment with lateroapical angles widely separated and acuminate. Pygofer (fig. 24) short, dorsolateral angles almost non-existing, posterior lateral margins (fig. 25) weakly convex, ventrally produced into an acuminate lobe on both sides of median line, two more small teeth between these lobes. Opening as broad as high, diaphragm V-shaped; aedeagus (fig. 26) laterally compressed, a slender little spinose process ventrally near apex and curved dorsocephalically, a flagellum closely overlying the aedeagus dorsally from apex to base, terminating in two short spinose processes which are curved ventrocephalically.

Length of body: 3 mm.

Diagnosis. — This species belongs to the genus *Thriambus* FENNAH because of the proportions of the frons, vertex, antennae, and the genital structure; it must be closely related to *Thriambus nicias* (FENNAH), but differs from it in the aedeagal structure.

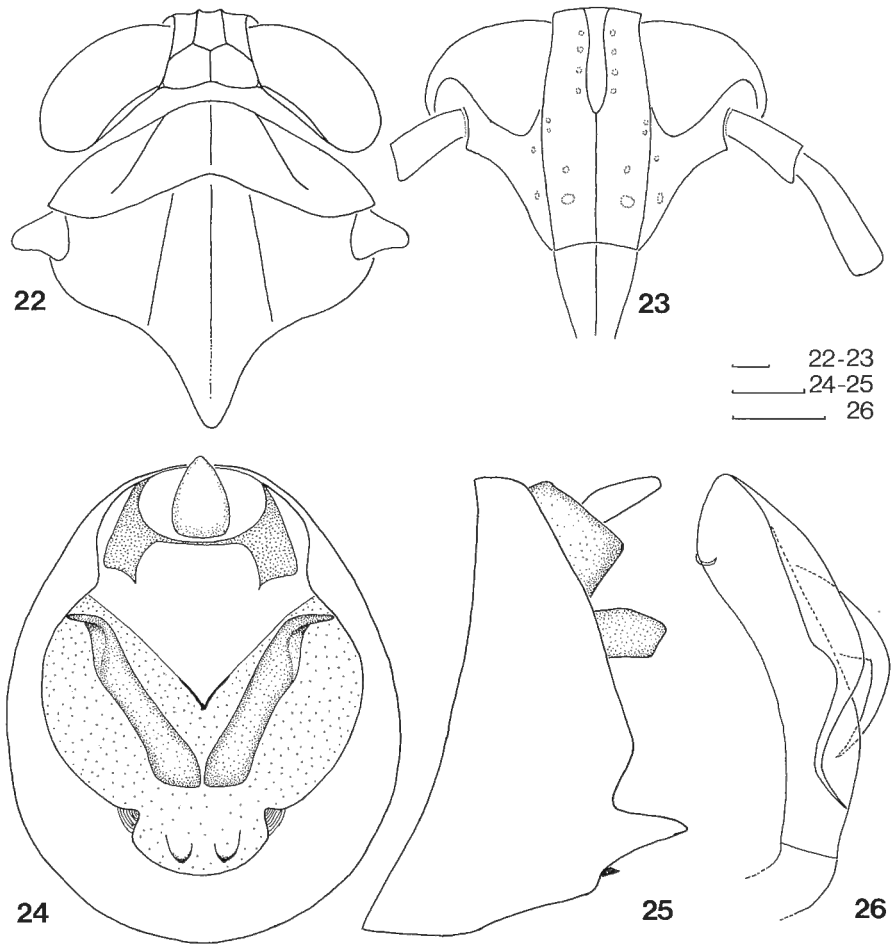


Fig. 22 to 26. — *Thriambus levis* n. sp.
 22 : head, pronotum and mesonotum, dorsal view; 23 : frons and clypeus, frontal view;
 24 : pygofer, posterior view; 25 : pygofer, left lateral view;
 26 : aedeagus, right lateral view. — scale : 0.1 mm.

Thriambus trispinosus n. sp.

(Figs. 27 to 32)

Material examined. — Holotype ♂ — Mount Cameroon 1600 m vhf-track, 21-III-1981.

Paratypes. — 1 ♂ 1 ♀, same locality.

Description. — Vertex (fig. 27) as broad as long, lateral margins straight and parallel in apical part, slightly diverging posteriorly. Submedian carinae prominent. Frons (fig. 28) as long as broad, lateral carinae

concave apically, convex at level of eyes, straight and parallel in lower part. Median carina deeply forked in middle of frons. Clypeus longer than broad (1.1:1), more than half as long as frons, with lateral margins slightly curved. Blemma present just above ocellus. Pronotum and mesonotum tricarinate, carinae prominent, and lateral ones straight and diverging basally. Metatarsus with the first segment more than half as long as the two others combined; first segment with seven, second with four spines apically. Calcar with 29 + 1 teeth.

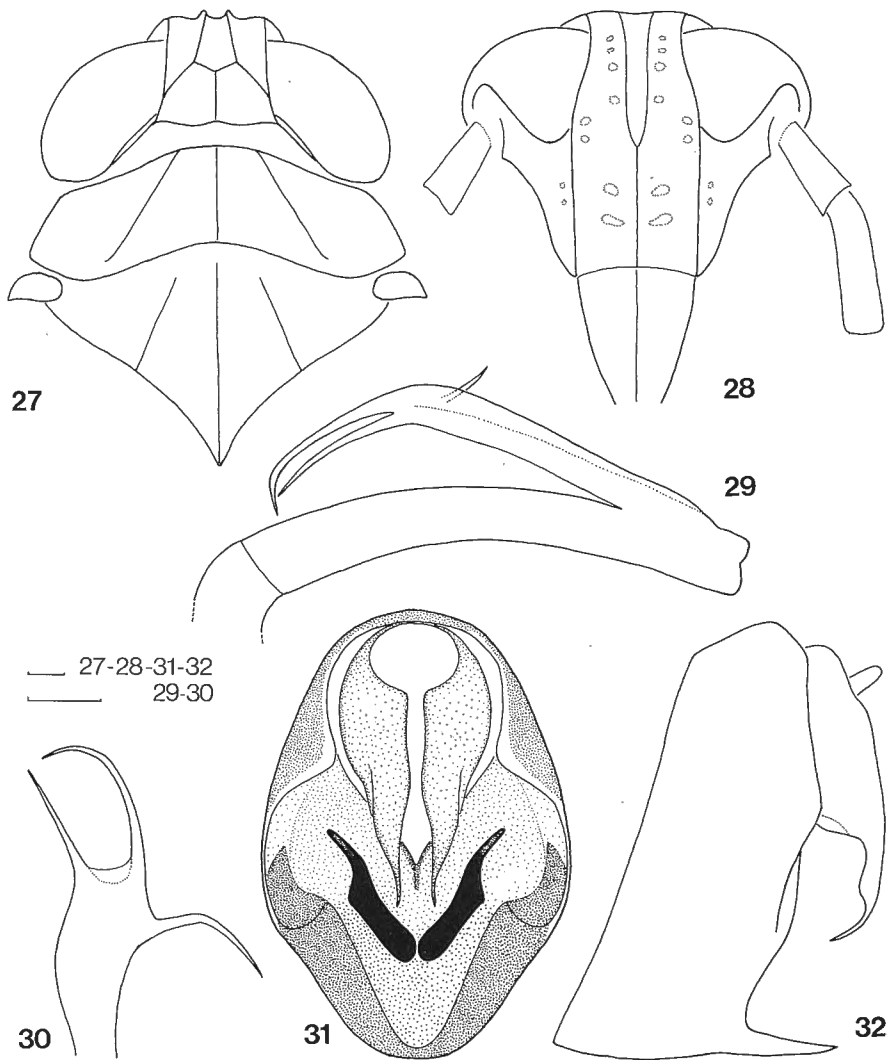


Fig. 27 to 32. — *Thriambus trispinosus* n. sp.
 27 : head, pronotum and mesonotum, dorsal view; 28 : frons and clypeus, frontal view;
 29 : aedeagus, right lateral view; 30 : aedeagus, apical part of the flagellum, dorsal view;
 31 : pygofer, posterior view; 32 : pygofer, right lateral view. — scale 0.1 mm.

Frons, clypeus and genae orange brown to dark brown, with paler spots as figured (fig. 28). Vertex, pro- and mesonotum orange brown but paler than frons. Lateral parts of pro- and mesonotum dark brown. Abdomen and pygofer dark brown. Legs with femora dark brown, tibiae and tarsi paler. Tegmina missing.

Male genitalia : Anal segment large, lateroapical angles strongly produced into two spinose processes directed ventrally. Opening of pygofer (fig. 31) shallow, posterior lateral margins (fig. 32) slightly curved in side view, and ventrally terminating in a median lobe; diaphragm V-shaped; genital styles rather short, opposed basally, and abruptly narrowing in apical part. Aedeagus (fig. 29) laterally compressed, a flagellum arising from apex and running along dorsal margin of stem, with three slender spines along its apical part (fig. 30).

Total length : 4 mm.

Diagnosis. — This species belongs to the genus *Thriambus* FENNAH because of the proportions of the head and antennae, and the general form of the male genitalia. It is distinguished from other *Thriambus* species by the form of the genital styles and the aedeagus.

Etymology. — This species is called « *trispinosus* » because of the presence of three spinose processes on the flagellum of the aedeagus.

Thriambus labiatus n. sp.

(Fig. 33 to 37)

Material examined. — Holotype ♂ — Mount Cameroon 1300 m, 11-III-1981.

Paratypes. — 1 ♂ 1 ♀, Mount Cameroon 1300 m, 26-II-1981.

Description. — Vertex (fig. 33) as long as broad, apex as broad as base, submedian carinae straight and slightly converging anteriorly, uniting on frons. Frons (fig. 34) twice as broad as long, lateral carinae concave in the upper part, convex at level of eyes, straight and converging in lower part. Median carina forked just above middle. Clypeus longer than wide (1.6:1), more than half as long as frons (1.0.6). Blemma present just above ocellus. Antennae with first segment more than twice as long as broad (2.6:1), second segment longer than first (1.5:1). Metatarsus shorter than tibia (1:0.8); first metatarsal segment more than half as long as metatarsus (1:0.6), with seven spines apically; second metatarsal segment with four spines apically; calcar with 26+1 teeth.

Frons and genae reddish-brown with pale spots. Clypeus dark brown, vertex and upper part of frons paler. Pro- and mesonotum pale reddish-brown, laterally coloured with indistinct dark brown spots. Abdomen,

coxae, femora and proximal part of tibiae reddish-brown, tarsi and distal part of tibiae yellowish. All specimens brachypterous, tegmina fumated with brown, veins pale. A dark spot basally along costal margin. Apical cells black.

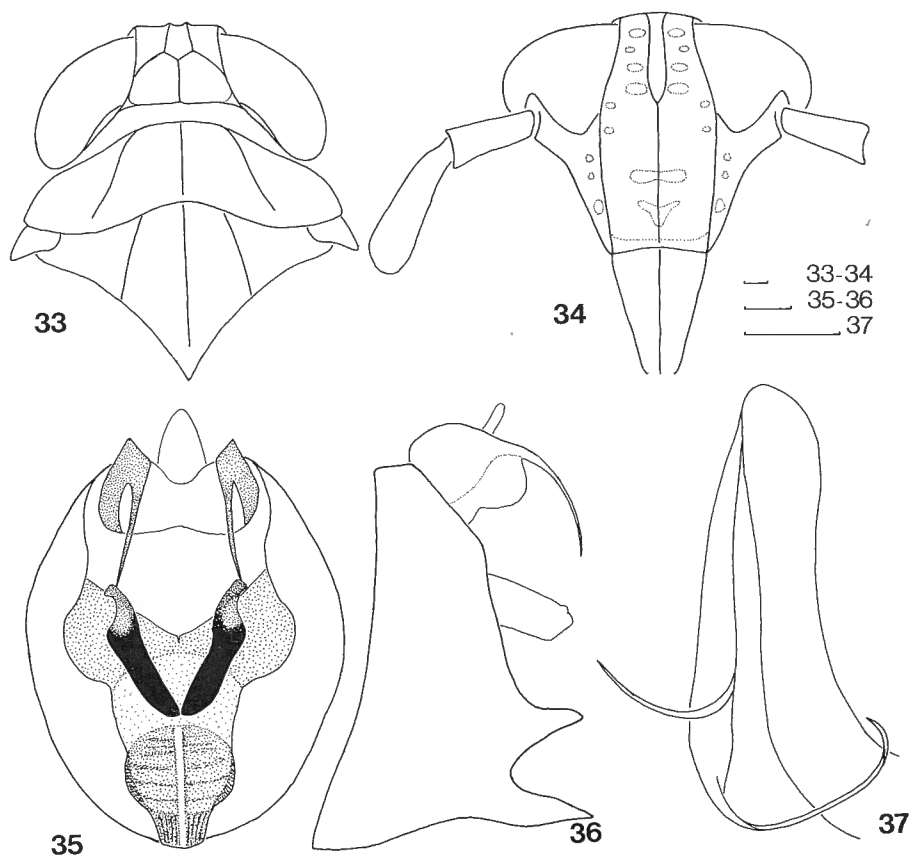


Fig. 33 to 37. — *Thriambus labiatus* n. sp.
 33 : head, pronotum and mesonotum, dorsal view; 34 : frons and clypeus, frontal view;
 35 : pygofer, posterior view; 36 : pygofer left lateral view;
 37 : aedeagus, left lateral view. — scale 0.1 mm.

Male genitalia : Anal segment with lateroapical angles widely separated, ventrally produced into a long and slender spinose process. Pygofer (fig. 35) rather short dorsally, longer ventrally, the dorsolateral angles obtuse. Posterior lateral margins (fig. 36) each ventrally produced into a blunt lobe. A similar third lobe present medioventrally with a shallow V-shaped incision at top. Diaphragm with a small and sharp incision medially. Genital styles moderately long, with a broad concavity apically along outer margin. Aedeagus (fig. 37) laterally compressed, a long

flagellum arising from apex and directed cephalically, with a dorsal and a ventral spine.

Length of body: 3-3.5 mm.

Diagnosis. — The generic position of this species is doubtful. I have placed it in the genus *Thriambus* FENNAH because of the proportions of the head and the aedeagal structure. It is also related to the genus *Neogadora* FENNAH because of the long first antennal segment.

Etymology. — The name is an allusion to the lip-like lobes of the pygofer.

Thriambus vegetatus (MELICHAR)

(Figs. 38 to 44)

Material examined. — 12 ♂ 14 ♀, Mount Cameroon 1200 m, 24-II-1981; 1 ♀, Mount Cameroon 1200 m, 12-III-1981; 1 ♂ 1 ♀, Mount Cameroon 1200 m, 15-III-1981; 3 ♀, Mount Cameroon 1400 m vhf-track, 21-III-1981; 1 ♂, Bombe, 13-III-1981.

Description. — Vertex (fig. 38) as broad as long, apex narrower than base. Lateral and submedian carinae slightly converging apically, submedian carinae uniting on frons. Frons (fig. 39) longer than broad along widest part (2.4:1), lateral margins concave in upper part near vertex, convex at level of eyes, then straight and converging to the frontoclypeal suture. Median carina forked just above middle. Clypeus about half as long as frons, longer than broad (1.3:1). Blemma very small and touching ocellus. Antennae with basal segment more than twice as long as broad (2.1:1), second segment longer than first (1.6:1). Metatarsus more than half as long as tibia (0.7:1); first metatarsal segment with seven spines apically, half as long as metatarsus, second metatarsal segment with four spines apically. Calcar with 28+1 teeth.

Colour of head and antennae ivory white. Colour of pro- and mesonotum variable, in some specimens yellowish throughout, sometimes suffused with brown along posterior part of pronotum and on mesonotum between keels. Abdomen dark brown. Legs ivory white. All specimens macropterous, tegmina (fig. 44) hyaline, with a brown lunular spot along apical margin; a second along the first apical vein and a third near the commissural margin at apex of common claval vein.

Male genitalia: Anal segment moderately long, without spinose processes on lateroapical angles. Pygofer (fig. 42) rather short, with dorso-lateral angles only weakly produced and broadly rounded. Posterior lateral margins (fig. 43) concave, sinuate in lower part; ventral margin

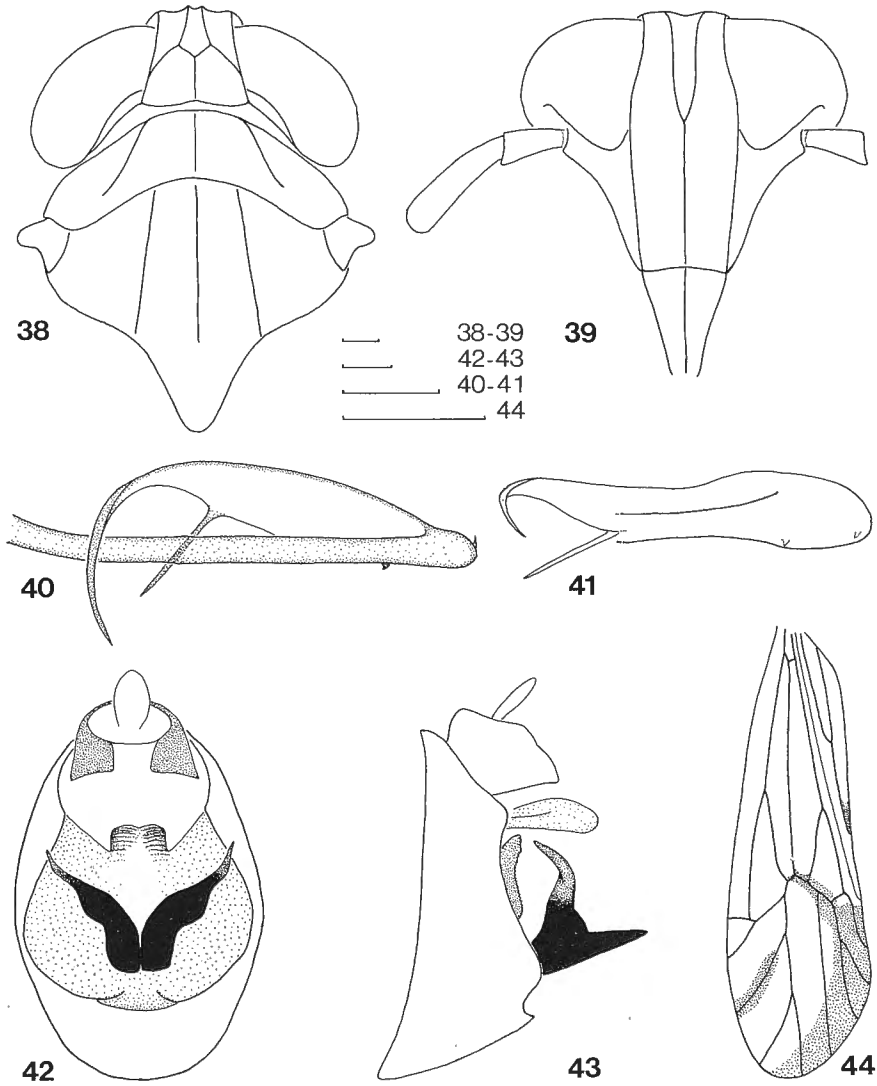


Fig. 38 to 44. — *Thriambus vegetatus* (MELICHAR)
 38 : head, pronotum and mesonotum, dorsal view; 39 : frons and clypeus, frontal view;
 40 : aedeagus, dorsal view; 41 : aedeagus, left lateral view; 42 : pygofer, posterior view;
 43 : pygofer and genital styles, left lateral view;
 44 : left tegmen. — scale figs. 38 to 43 : 0.1 mm; fig. 44 : 1 mm.

simple. Diaphragm with dorsal margin elevated in middle into a quadrate rugose process with apical angles gently rounded. Genital styles moderately long, outer margin sinuate and tapering at apex, a stout spinose process arising from the base and directed caudally. Aedeagus (figs. 40 & 41) slender and tubular, a thin flagellum arising from apex and directed cephalically with two slender spinose processes directed to left side.

Length of body : 3 mm.

Diagnosis. — This species belongs to the genus *Thriambus* FENNAH because of the proportions of the head and the antennae. It is characterised by the male genitalia. The genital styles recall those of *Thriambus stramineus* (MUIR), but differ from them in the form of the pygofer, anal segment and aedeagus.

Genus *Numata* MATSUMARA

Numata curvistylis n. sp. (Figs. 45 to 50)

Material examined. — Holotype ♂ — Mount Cameroon 2400 m vhf-track, 28-II-1981.

Paratypes. — 1 ♂ 1 ♀, Mount Cameroon 2300 m, 6-III-1981.

Description. — Vertex as broad as long, apex as broad as base, the submedian carinae almost parallel (fig. 45). Frons (fig. 46) longer than broad (2.3:1), lateral carinae slightly concave in upper part, straight and converging beneath eyes. Clypeus as broad as long, less than half as long as frons. Median carina forked above middle. Antennae with first segment longer than broad (1.4:1), second twice as long as first. Pronotum tricarinate, lateral carinae straight and diverging posteriorly, almost reaching posterior margin. Mesonotum tricarinate, lateral carinae straight and diverging basally. Metatarsus shorter than tibia (0.8:1); first metatarsal segment with seven spines apically, half as long as the metatarsus; second metatarsal segment with four spines. Calcar rather short, with 20+1 teeth.

Head, pro- and mesonotum yellowish; lower part of frons between carinae, clypeus and lateral parts of pro- and mesonotum fumated with brown. Abdomen dark brown. Legs yellow, third segment of the metatarsus fumated with brown. Tegmina of holotype missing; paratypes macropterous, tegmina milky hyaline, veins brown.

Male genitalia : Anal segment ring-like, lateroapical angles non-existing. Pygofer (fig. 48) moderately long, dorsolateral angles with a triangular lobe. The posterior lateral margins (fig. 49) slightly convex, ventrally ending in a blunt lobe. Two more blunt processes present along ventral margin on each side of median line (in all, four subequal lobes visible in ventral view). Dorsal margin of diaphragm concave. Genital styles sub-circular, opposed at base and shallowly forked apically. Aedeagus (fig. 50) laterally compressed, dorsal and ventral margin minutely denticulate apically, a stout process arising from base and directed caudally.

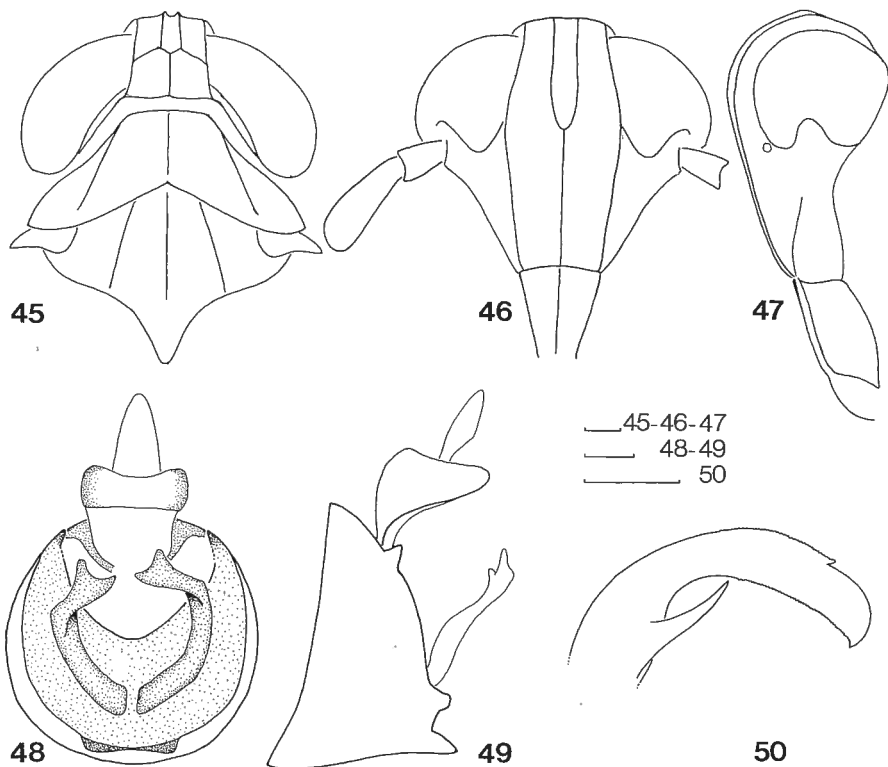


Fig. 45 to 50. — *Numata curvistylis* n. sp.
 45 : head, pronotum and mesonotum, dorsal view; 46 : frons and clypeus, frontal view;
 47 : head, lateral view; 48 : pygofer, posterior view; 49 : pygofer, lateral view;
 50 : aedeagus, right lateral view. — scale 0.1 mm.

Length of body : 3 mm.

Diagnosis. — The generic position given for this species is tentative. I have placed it in the genus *Numata* MATSUMARA because of the straight lateral carinae of the pronotum and the proportions of the vertex.

Etymology. — The name refers to the curved genital styles.

Genus *Matutinus* DISTANT*Matutinus laureatus* n. sp.

(Figs 51 to 56)

Material examined. — Holotype ♂ — Mount Cameroon 1200 m, III-1981, Malaise trap.

Paratypes. — 21 ♂ 10 ♀, same locality; 1 ♂ 3 ♀, Mount Cameroon 1200 m, 12-III-1981; 5 ♂ 2 ♀, Mount Cameroon 1200 m, 24-II-1981; 1 ♂ 1 ♀, Mount Cameroon 1200 m, 10-III-1981; 1 ♂, Mount Cameroon 1300 m, 25-II-1981.

Description. — Vertex longer than broad (1.2:1) (fig. 51), slightly narrower at apex, lateral margins straight. Submedian carinae prominent, uniting at apex. Frons (fig. 52) more than twice as long as broad at widest part (2.1:1), lateral margins weakly convex; median carina forked at junction between frons and vertex. Postclypeus longer than broad (1.4:1). Antennae reaching frontoclypeal suture, basal segment longer than broad (1.4:1), second segment twice as long as first. Pronotum tricarinate, lateral carinae straight and strongly diverging basally, not reaching posterior margin. Mesonotum tricarinate, lateral carinae weakly diverging caudally. Metatarsus shorter than tibia (0.9:1); first metatarsal segment with seven spines apically, more than half as long as metatarsus (0.6:1); second metatarsal segment with four spines apically. Calcar with 28 + 1 teeth.

Colour of head stramineous, pro- and mesonotum pale brown, with a broad whitish median streak; tegmina hyaline, veins concolorous, except for apical veins, which are brown; a brown spot on junction of common claval vein and commisural suture. Legs pale, abdomen brownish. All specimens macropterous.

Male genitalia: Anal segment short, lateroapical angles indistinct, a pair of rather long and slender spinose processes arising on its ventral surface, running caudally close to ventral margin. Pygofer (fig. 55) rather short, posterior opening longer dorsoventrally than broad, with a minute medioventral process; posterior lateral margins straight. Diaphragm with dorsal margin elevated in middle into a quadrate black process. Genital styles short and broad, widening apically into a rounded apex, acuminate at the inner apical edge. Aedeagus (fig. 56) tubular, long and slender, narrowing and slightly depressed distally.

Length of body : 2-2.5 mm.

Diagnosis. — This species belongs to the genus *Matutinus* DISTANT because of the proportions of the head and antennae, and the form of the male genitalia. It is distinguished from other *Matutinus* species by the form of the pygofer, genital styles and aedeagus.

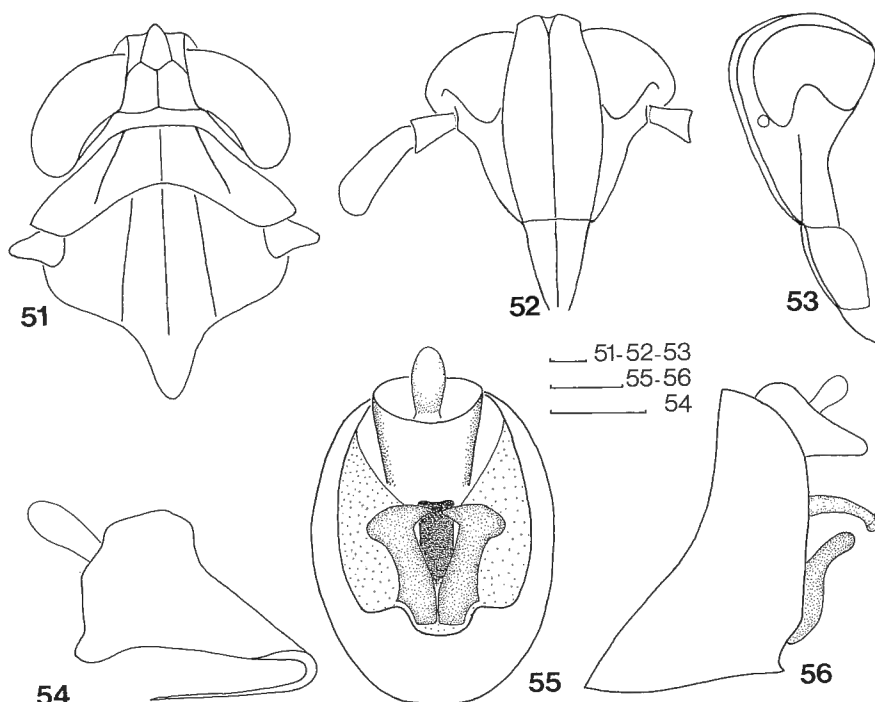


Fig. 51 to 56. — *Matutinus laureatus* n. sp.
 51 : head, pronotum and mesonotum, dorsal view; 52 : frons and clypeus, frontal view;
 53 : head, left lateral view; 54 : anal segment, right lateral view;
 55 : pygofer, posterior view; 56 : pygofer, aedeagus and genital style,
 left lateral view. — scale 0.1 mm.

Genus *Toya* DISTANT

Toya propinqua (FIEBER)

(Figs. 57 to 63)

Material examined. — 54 ♂ 12 ♀, Mount Cameroon 1200 m, III-1981, Malaise trap; 5 ♂, Mount Cameroon 1200 m, 9-III-1981; 1 ♂, Mount Cameroon 1200 m, 10-III-1981; 1 ♂, Mount Cameroon 1200 m, 12-III-1981.

Description. — Vertex (fig. 57) broader than long submedially (1:1.3) obtusely rounding into frons. Lateral and submedian carinae prominent. Frons (fig. 58) twice as long as broad, widest part at level of eyes, lateral carinae weakly convex, median carina simple, forked near junction with vertex. Clypeus half as long as frons, longer than broad (1.1:1).

Blemma present just above ocellus. Antennae with first segment longer than broad (1.5:1), second segment longer than first (1.7:1). Pronotum tricarinate, lateral carinae strongly diverging distally, not reaching posterior margin; mesonotum tricarinate, carinae subparallel. Metatarsus longer than tibia (1.1:1), first metatarsal segment shorter than second and third combined (0.4:1), with seven spines apically; second metatarsal segment with four spines. Calcar with $20 + 1$ teeth, almost the same length as the first metatarsal segment.

Basal compartment of vertex and all carinae of vertex, frons and clypeus stramineous. On frons, clypeus and anterior part of vertex, the carinae are bordered with black, and sometimes the frons and clypeus are entirely black between the keels. Pro- and mesonotum and legs stramineous; abdomen including pygofer, apical part of tarsi, and in some cases base of femora, dark brown. Tegmina hyaline, veins concolorous, except for apical veins and apex of common claval vein brownish. All specimens macropterous.

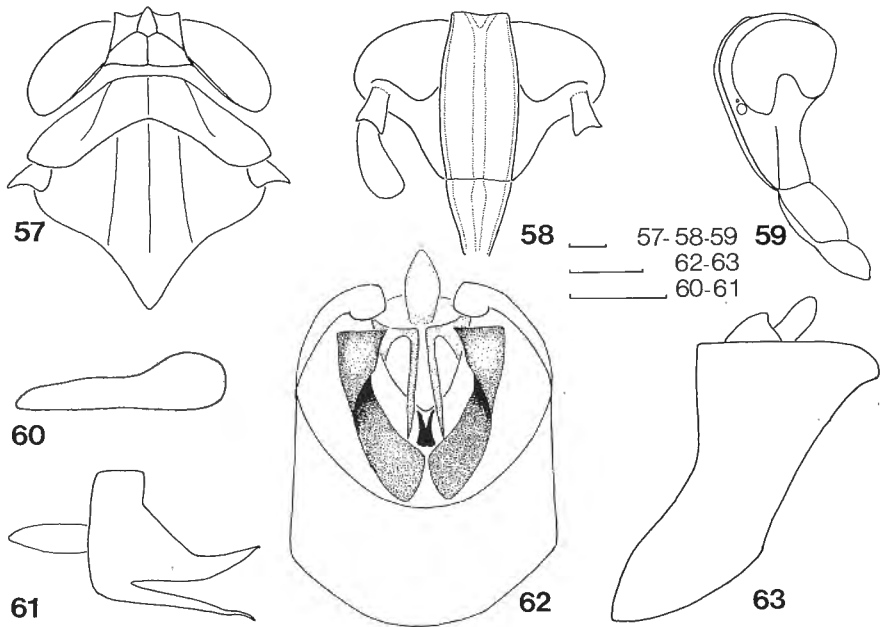


Fig. 57 to 63. — *Toya propinqua* (FIEBER)
 57 : head, pronotum and mesonotum, dorsal view; 58 : frons and clypeus, frontal view;
 59 : head, left lateral view; 60 : aedeagus, right lateral view;
 61 : anal segment, right lateral view; 62 : pygofer, posterior view;
 63 : pygofer, lateral view. — scale 0.1 mm.

Male genitalia : Anal segment (fig. 61) short, lateroapical angles close to middle line, each produced into a straight spinose process running cephalically along ventral margin. Pygofer (fig. 62) moderately long,

dorsally excavate, dorsolateral angles strongly produced (fig. 63). Opening as long as broad, almost circular. Genital styles long, distally curved, with a truncate apex. Aedeagus simple, with a broad base, narrowing to apex.

Diagnosis. — This species belongs to the genus *Toya* DISTANT because of the general structure of the vertex in combination with the form of the lateral carinae of the pronotum, and because of the proportions of the antennae. It is characterised by the male genitalia.

Toya spinifera n. sp.

(Figs. 64 to 69)

Material examined. — Holotype ♂ — Mount Cameroon 2800 m, 24-III-1981, by light (HPL-125W).

Paratypes. — 7 ♂ 6 ♀, same locality; 1 ♂ 1 ♀, same locality, 23-III-1981.

Description. — Vertex (fig. 64) shorter submedially than broad along base (1:1.3), lateral carinae parallel and obtusely rounding into frons. Frons (fig. 65) twice as long as broad, broadest part in middle, lateral carinae slightly convex, median carina simple, forked near junction with vertex. Clypeus half as long as frons, as long as broad. Small blemma present just above ocellus. Basal segment of antennae slightly longer than broad (1.4:1), second segment twice as long as first. Pronotum tricarinate, lateral carinae strongly diverging posteriorly. Mesonotum tricarinate, lateral carinae slightly convex and diverging posteriorly. Metatarsus shorter than tibia (0.8:1), first metatarsal segment with seven spines apically, half as long as the metatarsus, second segment with four spines apically. Calcar with 18 + 1 teeth.

Frons, clypeus and apical part of vertex black between keels; carinae, genae and basal compartment of vertex yellowish with brown traces. Colour of pro- and mesonotum variable. In brachypterous specimens, the colour is rather pale-yellowish, sometimes with indistinct brown colour traces along the posterior margin of the pronotum and anterior part of the mesonotum. The macropterous specimens are darker: the posterior half of the pronotum and the anterior and lateral parts of the mesonotum are coloured brown with pale carinae. In one macropterous specimen, the whole mesonotum, including the carinae, is black. Most specimens are brachypterous. Tegmina of macropterous specimens hyaline, veins concolorous in anterior part and dark brown in posterior part. A brown spot present along the commisural margin near apex of common claval vein. Abdomen dark brown, legs pale-yellowish with coxae dark brown.

Male genitalia: The anal segment is very large and occupies the major part of the posterior opening of the pygofer (fig. 67) with two stout

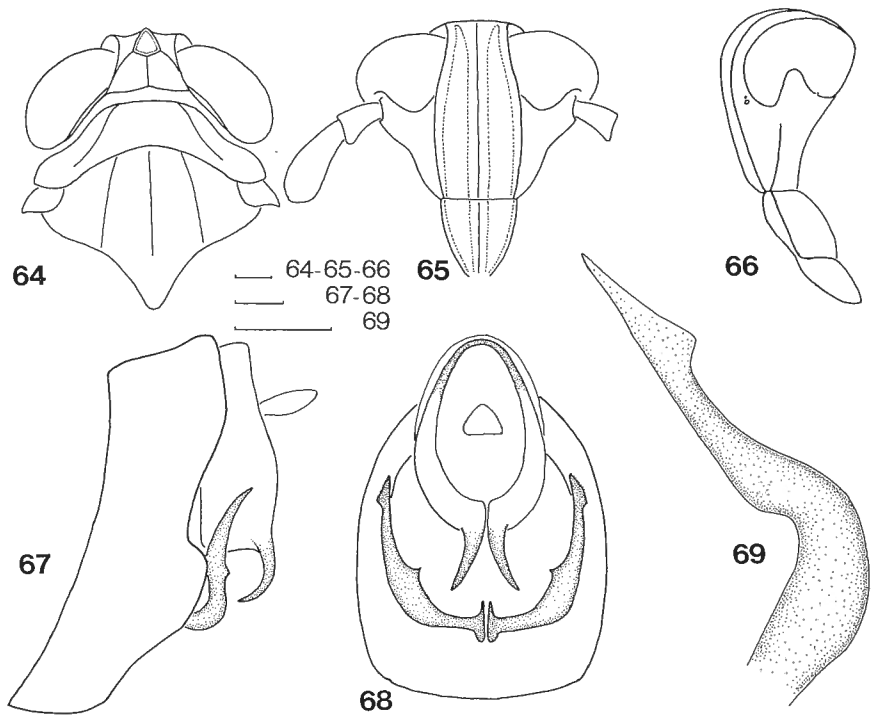


Fig. 64 to 69. — *Toya spinifera* n. sp.

64 : head, pronotum and mesonotum, dorsal view; 65 : frons and clypeus, frontal view; 66 : head, lateral view; 67 : pygofer, anal segment and genital style, left lateral view; 68 : pygofer, posterior view; 69 : aedeagus, right lateral view. — scale 0.1 mm.

spinose processes arising from their lateroapical angles and close together along the median line. Pygofer short, posterior lateral margins in middle produced into a subrectangular lobe (fig. 67). Aedeagus (fig. 69) curved in basal part, with a tapering apex. Genital styles long, slender and gently curved, with a small tooth halfway along their inner margin and terminating in a minutely denticulated apex.

Length of body : 2-2.5 mm.

Diagnosis. — This species belongs to the genus *Toya* DISTANT because of the proportions of the head and antennae. It is distinguished from the other species by the shape of the male genitalia and by the unusual proportions of the anal segment.

Etymology. — The name is an allusion to the stout spinose processes along the lateroapical angles of the anal segment.

FAMILY TROPIDUCHIDAE

Genus *Tropiduchus* STAL*Tropiduchus bifasciatus* n. sp.

(Figs. 70 to 74)

Material examined. — Holotype ♂ — Mount Cameroon 1700 m, 27-II-1981.

Paratypes. — 2 ♀, same locality; 1 ♀, Mount Cameroon 1400 m, 11-III-1981; 2 ♀, Etinde 700 m, 2-III-1981.

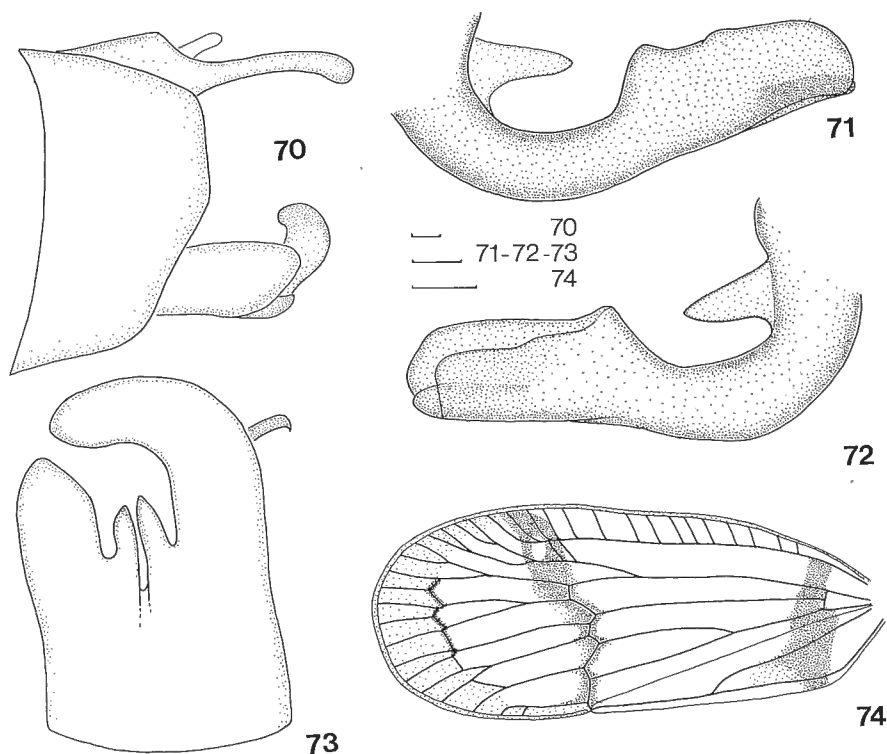


Fig. 70 to 74. — *Tropiduchus bifasciatus* n. sp.

70 : pygofer, anal segment and genital styles, left lateral view;

71 : aedeagus, left lateral view ; 72 : aedeagus, right lateral view;

73 : genital styles, ventral view; 74 : left tegmen. — scale fig. 70 to 73 : 0.1 mm

fig. 74 : 0.5 mm.

Description. — Head, pro- and mesonotum pale; frons with median carina thickened, constricted near frontoclypeal suture, and prolonged on posclypeus. Lateral carinae not thickened. Vertex with anterior and posterior margin parallel-sided, semicircular, shorter in middle line than the length of an eye. Tegmina (fig. 74) hyaline, with two transverse brown bands: one on base of tegmen, extending from subcosta to commissural suture, the other about two-thirds of the way along tegmen, from costal margin to top of clavus. Apical cels fumated with brown. Legs pale.

Male genitalia: Anal segment long and slender; posterior lateral margins of pygofer (fig. 70) angulately convex. Genital styles (fig. 73) asymmetrical, fused at their base, produced into a pair of subequal lobes, that on left short, with a blunt apex, that on right long and medially curved, with a slender appendix on its outer margin. Each genital style bears a tooth on its inner side. Aedeagus (figs. 71 & 72) tubular at base, more lamelliform to apex. Base with a stout denticulate process dorsally, directed caudally.

Female genitalia: Middle of seventh abdominal sternite simple.

Length of body: ♂, 6 mm; ♀, 8 mm.

Diagnosis. — This species is easily distinguished by the pattern on the tegmina and the shape of the male genitalia.

Etymology. — The name recalls the two transverse dark bands on the tegmina.

Genus *Haliartus* MELICHAR

Haliartus centralis (GERSTAECKER)

Tropiduchus centralis GERSTAECKER, C.E., 1895, Mitth. naturw. Ver. Griefswald, 27, p. 16.

Material examined. — 1 ♂, Mount Cameroon 1200 m, 20-III-1981.

Genus *Numicia* STAL

Numicia spec.

Material examined. — 1 ♀, Mount Cameroon 1200 m, 10-III-1981.

Genus *Camerunilla* HAGLUND

Material examined. — 1 ♀, Mount Cameroon 1600 m, 6-III-1981; 1 ♀, Mount Cameroon 1900 m, 23-III-1981.

The description given by MELICHAR (1906) and SYNAVE (1957) of *Camerunilla fuscovaria* HAGLUND fits the two specimens caught on Mount Cameroon. However, as the specimens are females, it is impossible to identify them with certainty.

Genus *Tropiduchodes* SCHMIDT*Tropiduchodes dubius* n. sp.

(Figs. 75 to 78)

Material examined. — Holotype ♂ — Etinde 900 m, 18-III-1981.

Paratype. — 1 ♂, Etinde 700 m, 2-III-1981.

Description. — General colour of frons yellowish brown, with median and lateral carinae thickened and tumid, paler (fig. 77). Two longitudinal rows of paler spots present on each side of median carina. Frons less than twice as long as broad (1.5:1). Vertex (fig. 78) twice as

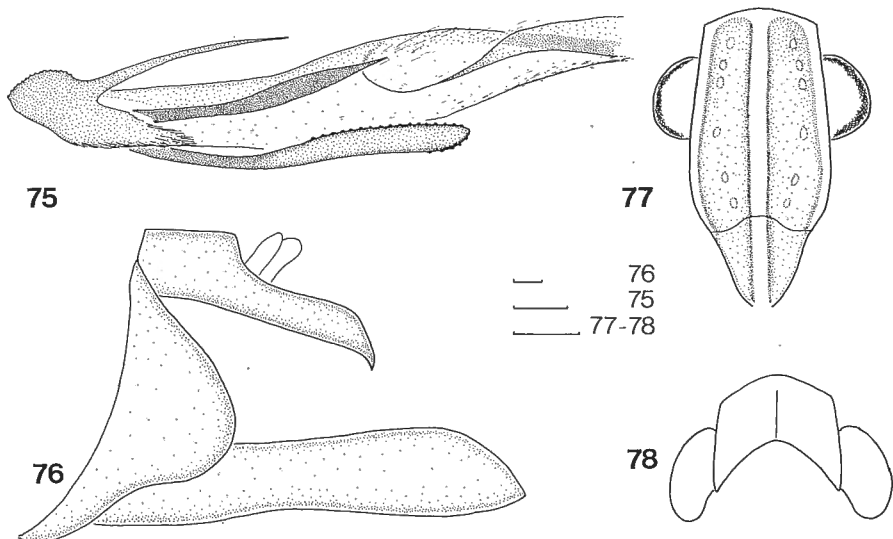


Fig. 75 to 78. — *Tropiduchodes dubius* n. sp.
75 : aedeagus right lateral view; 76 : pygofer, anal segment and genital styles, left lateral view; 77 : head, frontal view; 78 : vertex, dorsal view. — scale fig. 75 & 76 : 0.1 mm; fig. 77 & 78 : 0.5 mm.

broad between hind edges as long along median line, with a weakly developed median carina not reaching the anterior margin. General colour of upper surface of body orange brown; carinae of pro- and mesonotum and veins of tegmina paler. Two dark spots present along posterior margin of mesonotum, on each side of median carina. Wings fumated with brown.

Male genitalia : Anal segment rather long, caudally ending in a slender acuminate process; pygofer (fig. 76) with posterior lateral margins produced into a rounded subrectangular lobe. Aedeagus (fig. 75) long and slender, with three long spinose processes directed cephalically : one dorsal spine, one lateral spine on right side, and a long ventral spine inserrated apically on left side, bent ventrally to right side, and then directed cephalically running along ventral margin of aedeagus, terminating in a blunt apex. Apical part of aedeagus and third spinose process minutely denticulated.

Total length : 7 mm.

Diagnosis. — This species must be closely related to *Tropiduchodes coleoptratus* SCHMIDT, but I did not have the opportunity to compare them. *Tropiduchodes coleoptratus* is known from two females from Barombi, a locality in the neighbourhood of Mount Cameroon, it is redescribed by SYNAVE (1957), and listed by SYNAVE (1963) from Mount Nimba (three females). I saw the specimens in the Brussels Museum, and I do not think they belong to the same species, the specimens being 9 mm while the length of the holotype of *T. coleoptratus* is 7 mm.

According to the descriptions given by SCHMIDT (1910) and SYNAVE (1957), the following differences between *Tropiduchodes dubius* n. sp. and *T. coleoptratus* SCHMIDT can be noted : the lateral carinae of the frons are not brown and the frons is not twice as long as broad. The presence of two rows of whitish spots is not mentioned in the descriptions of *T. coleoptratus*.

Etymology. — The name is an allusion to the uncertain relationship between this species and *Tropiduchodes coleoptratus* SCHMIDT.

FAMILY RICANIIDAE

Genus *Pochazia* AMYOT & SERVILLE

Pochazia fasciata (FABRICIUS)

Flata fasciata FABRICIUS 1803, Systema Rhyngotorum, p. 47.

Material examined. — 1 ♀, Bombe, 13-III-1981.

Genus *Epithemna* MELICHAR

Material examined. — 1 ♀, Mount Cameroon 1500 m vhf-track, 21-III-1981.

The species belongs to the *retracta* group, but I was not able to identify it with certainty.

Distribution of Homoptera in an altitudinal gradient.

Table I lists all the Fulgoroidea species occurring in the different collecting stations in the altitudinal gradient on Mount Cameroon (BOSMANS, 1981); species already dealt with in a previous paper (VAN STALLE, 1982) are also included. A very high percentage of the species appear to be new to science (20 out of 34). A remarkable feature is that all the previously known species occur in the lower parts of the mountain, namely *Oliarus bingervillei* SYNAVE, *O. moestus* STAL, *Cnidus candidus* SYNAVE, *Philotheria africana* SYNAVE, and *Phaenodictyon ellipticum* (WALKER) occurring at sea level, and *Euphyonarthex phyllostoma* SCHMIDT, *Haliartus centralis* (GERSTAECKER), *Peregrinus iocasta* (FENNAH) and *Hapalomelus onytes* FENNAH occurring in the cultivated areas above the base camp site. On the other hand, all species found above 100 m on Etinde and above 1600 m on Mount Cameroon itself appear to be new to science. Probably the majority of these are endemic species. Since Mount Cameroon has never formed the background to comprehensive study of the Homopterous fauna, the percentage of new species is fairly high.

Except for the Delphacidae (Tropidocephalini and Delphacini), none of the Fulgoroidea families ever extend their range above 2000 m, the upper limit of the montane rain forest. They live on different kinds of trees and bushes and prefer a fairly high degree of humidity. In the altitudinal zonation therefore, the species are confined to the lowland rain forest belt, the submontane forest belt and the lower part of the montane forest belt. Tropidocephalini and Delphacini (Delphacidae), on the other hand, live on grasses; in the altitudinal zonation they are confined to the grassy areas just above Buea town (1200-1300 m), to a clearing near hut 1 (1900), and to the montane grassland above the montane forest. In places where the rain forest is well developed they are never found.

An interesting feature is the occurrence of two *Eurysa* species in the altitudinal gradient. *Eurysa fastigiorum* n.sp. occurs between 1200 and 2100 m and is then replaced by *E. ornata* n.sp., which occurs between 2300 m and 2800 m.

The upper limit of occurrence of Fulgoroidea is 2800 m. Between 2900 m and 4000 m only larvae of Delphacidae were found, indicating the presence of Fulgoroidea in higher altitudes.

The highest number of species occurs around the base camp at Buea, but this is probably due to a higher collecting intensity, and also to the

mixture of various habitats : grassland, secondary forest and relicts of the natural rain forest.

SUMMARY

This paper deals with the Delphacidae (13 species), Tropiduchidae (5 species) and Ricaniidae (2 species) collected from the Mount Cameroon and adjacent areas. The altitudinal zonation of Homoptera Fulgoroidea on the mountain is discussed and eleven species are described as new to science : *Eurysa fastigiorum* n.sp., *Eurysa ornata* n.sp., *Thriambus strenuus* n.sp., *Thriambus levis* n.sp., *Thriambus trispinosus* n.sp., *Thriambus labiatus* n.sp., *Numata curvistylis* n.sp., *Matutinus laureatus* n.sp., *Toya spinifera* n.sp. (Fam. Delphacidae), *Tropiduchus bifasciatus* n.sp. and *Tropiduchodes dubius* n.sp. (Fam. Tropiduchidae).

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