



Fig. 1.—*Macratrtria succinia* Abdullah, new species, holotype, dorsal view. Fig. 2.—Same ventral view. Fig. 3.—*Palaeopyrochroa crowsoni* Abdullah, new genus and species, holotype, female, dorsal view. Fig. 4.—Same, ventral view.



SOME ASPECTS OF THE BIOLOGY OF *Psallus ambiguus* (FALL.) (HETEROPTERA: MIRIDAE) ON APPLE TREES IN KENT

By M. G. MORRIS

PART II

VII. Movement and Dispersal

In the experimental orchard almost no larvae survived on the plots treated with DDT+BHC. These plots thus provided an ecological vacuum for colonisation by the adult (winged) insects. In 1959 there was a period following eclosion of the adults on the other plots during which no *P. ambiguus* were found on the plots sprayed with DDT+BHC, but in 1960 adults began to appear on these plots immediately after eclosion of the adults on the control and lead arsenate + nicotine sprayed plots. Mark and recapture experiments made in 1960 and 1961 failed to show that the adult insects found on the plots sprayed with DDT+BHC came from the other plots (Table VIII) but this nevertheless is thought to have been the case, as no other colony of *P. ambiguus* existed near the experimental orchard, nor was the species found on a hawthorn hedge at one end of the orchard.

TABLE VIII

Recaptures of marked *P. ambiguus* adults (all plots)

Year	No. marked and released	No. recaptured on same plot	No. recaptured on different plots
1960	524	22	2
1961	660	64	1

The numbers of adults declined from 1959 to 1961, presumably because a third of the orchard was sprayed each year with DDT+BHC. The proportion of adults found on the plots sprayed with DDT+BHC during the time adults were found on these plots became relatively smaller from 1959 and 1960 to 1961, suggesting that emigration is proportionately less from a sparse than from a dense colony (Table IX).

TABLE IX

Mean numbers of *P. ambiguus* imagines recorded per sampling occasion during the period in which they were found on the trees treated with DDT/BHC

Year	Control and L.A./nicotine plots	DDT/BHC plots	% of total
1959	33.3	8.7	20.7
1960	14.5	4.0	21.6
1961	8.4	0.8	8.4



NEW ANTHICIDAE AND PYROCHROIDAE (COLEOPTERA)
FROM THE BALTIC AMBER (OLIGOCENE)

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PLATE I

Dr. Roy A. Crowson of the University of Glasgow has kindly sent me the specimens described below which he received from the Geologisches Museum in Hamburg, West Germany. The material came too late for inclusion in my main paper on the Baltic amber Heteromera (Abdullah, 1964).

I. Family Anthicidae

Distinguishing characters of the family visible in the specimen. All five visible abdominal sternites free; tarsi with penultimate segment lobed below; maxillary palpi long, subultriform (so not Aderidae or Euglenidae, Cephaloidae, Meloidae, Pythidae, Pyrochroidae, Nilionidae, Lagriidae, Tenebrionidae, Alleculidae, and Pterogeniidae). Head strongly deflexed, sharply and deeply constricted at neck; eyes entire; elytra without vein-like ribbing (so not Oedemeridae). Antennae filiform; base of prothorax narrower than elytra at shoulders (so not Rhipiphoridae). Tibial spurs not pubescent (? , hard to see); side borders of prothorax obsolete (so not Scaptiidae, Mordellidae, Melandryidae, and Tetratomidae). Front coxae projecting (so not Tricentotomidae, Monommidae, and Zopheridae). Mesepimera reaching middle coxal cavities (so not Inopeplidae, Salpingidae, Cononotidae, Mycteridae, Hemipeplidae, and Elacatidae). Antennae not inserted under sides of frons (so not Boridae). Tarsal formula 5, 5, 4 (so not Merycidae, Mycetophagidae, and Colydiidae).

Distinguishing character of the subfamily Pedilinae visible in the specimen. Metacoxae nearly contiguous (so not Anthicinae).

Distinguishing character of the tribe Macratrini visible in the specimen. Neck narrow (so not Eurygeniini or Pedilini).

Distinguishing characters of the genus *Macratrion* Newman visible in the specimen. Vertex without *Protomacratrion*-like three characteristic punctures (so not *Protomacratrion* Abdullah). Pronotum not transverse, and apical three segments of antennae together not longer than the remaining segments combined (so not *Lithomacratrion* Wickham).

Macratrion succinia Abdullah, new species

(Photographs 1-2)

Holotype, no. 1065 (Scheele collection), in the Geologisches Museum, Hamburg, West Germany.

Shape. Elongate, cylindrical.

Colour. Black to fuscous; antennae and palpi lighter.

Vestiture. Pubescence sparse, uniform, short, decumbent; a few erect hairs present along margins of tempora, pronotum and elytra.

Surface shining.

Punctures fine.

Tempora reduced. Frontal ridge obsolete. Occipital groove indistinct. Labrum entire at apex. Mandibles bifid. Maxillary palpi nearly as long as head. Eyes lateral, convex, entire dorsally separated by a distance slightly greater than their individual width; width of head across eyes nearly equal to that of pronotum at its widest part. Antennae filiform; 11-segmented, segments IX-XI slightly thickened, apical segment less than twice longer than tenth segment.

Pronotum nearly as long as wide or very slightly longer. Tibial spurs short. First tarsal segments of front tarsi greatly dilated, as wide as fore-tibiae. Femora dilated distally; tibiae and tarsi slender. Tarsal claws simple. Epipleural fold of elytra indistinct. Elytral apices rounded, slightly separated along sutural margins.

Abdomen with five visible sternites; seventh (=fifth visible) sternite entire at apex.

Measurements in mm. Total length 2. Antennal segments I-XI: 0.12, 0.08, 0.06, 0.07, 0.06, 0.06, 0.07, 0.05, 0.09, 0.12, and 0.16 respectively. Maxillary palp segments III-IV: 0.06 and 0.14 respectively. Head: width across eyes 0.44; dorsal interocular distance 0.20. Pronotum: length 0.50; width at apex 0.15; maximum width 0.45; width at base 0.36. Elytron: length 1.26; maximum width 0.34. Front tarsus, segments I-II: 0.21, 0.10, others not at all clear. Middle tarsus, segments I-V: 0.12, 0.09, 0.08, 0.03, and 0.10 respectively. Hind tarsus, segments I-IV: 0.28, 0.07, 0.03, and ? respectively. Hind tibial spur 0.07.

Remarks. Champion (1916: 201) states about *Macratrion*, "The greatly thickened basal joint of the anterior tarsi (looking at first sight like a fractured portion of the tibia), not necessarily a male character, in some of the Tropical American forms is noteworthy, and is doubtless indicative of arboreal habits". Species of *Macratrion* with this kind of front tarsi are listed below and the characters distinguishing them from *Macratrion succinia* are also mentioned.

1. *M. canaliculata* Pic, 1896, from Brazil, has appendiculate tarsal claws.
2. *M. complanata* Champion, 1916, from Colombia, has scabrous pronotum and appendiculate tarsal claws.
3. *M. crassimanus* Champion, 1916, from Brazil, has the first tarsal segments on the fore-legs wider than the fore-tibiae.
4. *M. egaensis* Champion, 1916, from Amazons, has very deep occipital groove on the head.
5. *M. exilis* Pascoe, 1877, from New Zealand, has the eleventh antennal segment twice as long as the tenth segment.
6. *M. fissiceps* Champion, 1916, from Colombia, has the prothorax broader than the head.

7. *M. frontalis* Champion, 1916, from Amazons, has the first tarsal segments on the fore-legs wider than the fore-tibiae.
8. *M. princeps* Champion, 1890, from Mexico and Guatemala, has stout first tarsal segments on all legs.
9. *M. scabruda* Champion, 1916, from Brazil, has the prothorax broader than the head.
10. *M. truncata* Champion, 1916, from Brazil, has the prothorax broader than the head.

II. Family Pyrochroidae

If the New Zealand genus *Techmessa* Bates is to be included in this family then I suggest that the definition of the family be modified so as to include forms with appendiculate tarsal claws as well. In Crowson's key the material described below will key out to Pyrochroidae if the key is modified to read "tarsal claws simple or appendiculate" as I believe needs to be done, otherwise one may confuse the specimen with Oedemeridae (Crowson, 1955).

The following characters visible in the specimen make it impossible to place it satisfactorily in any other family of Heteromera (*sensu* Crowson) except Pyrochroidae (*sensu lato*).

1. Tarsi, 5, 5, 4 (so not Merycidae, Mycetophagidae, and Colydiidae).
2. Tarsi with lobed segments (so not Pterogeniidae and Pythidae).
3. Abdomen with all visible sternites freely articulated (so not Nilionidae, Lagriidae, Tenebrionidae, and Alleculidae).
4. Front coxae projecting (so not Monommidae, Zopheridae, and Trictenotomidae).
5. Front coxal cavities open behind (so not Elacatidae).
6. Prothorax without side borders (so not Boridae).
7. Mesepimera reaching middle coxal cavities (so not Inopeplidae, Salpingidae, Cononotidae, Mycteridae, and Hemipeplidae).
8. Front coxal cavities open (visibly or externally, not possible to observe internally but I think they are); trochantins exposed; tarsal claws appendiculate; tibial spurs simple; also characters 3 and 6 (so not Tetratomidae, Melandryidae, Scraupiidae, Mordellidae, Rhipiphoridae, Cephaloidea, Meloidae, Oedemeridae, Anthicidae, and Aderidae or Euglenidae).

Palaeopyrochroa Abdullah, new genus

Diagnosis. A combination of the following characters (1a = eyes moderate, 1b = eyes not approximate dorsally; 2 = head not transverse across eyes; 3 = prothorax not bordered; 4 = tarsal claws appendiculate; 5 = only penultimate tarsal segments lobed below; and 6 = small size) distinguishes this genus from the following genera. The numbers following the genera below refer to the characters in which the genera differ from *Palaeopyrochroa*.

Dendroides Latr., 1, 4, 6; *Dendroidopsis* Blair, 1, 4, 6; *Exocalopus* Broun, 2, 5; *Eupyrochroa* Blair, 4, 5 (?), 6; *Hemidendroides*

Ferr., 4, 6; *Ischalia* Pascoe, 3, 4, 6; *Neopyrochroa* Blair, 4, 6; *Phyllocladus* Blair, 1, 4, 6; *Pogonocerus* Fischer, 1, 4, 6; *Pseudodendroides* Blair, 1, 4, 6; *Pseudopyrochroa* Pic, 4, 6; *Pyrochroa* Geoffroy, 4, 6; *Schizotus* Newman, 4, 6; *Techmessa* Bates, 2, 5; and *Techmessodes* Broun, 2, 5.

Vestiture sparse.

Punctures fine on pronotum, coarse on elytra.

Head constricted behind eyes forming a wide neck. Tempora reduced. Clypeolabral sulcus distinct. Antennae 11-segmented, serrate in female. Mandibles with bifid apices. Apical (= fourth) segment of maxillary palpi dilated (outline not clear but probably triangular-elongated). Labial palpi filiform, apical (= third) segment slightly thickened. Eyes moderate, not approximate above, broadly emarginate below antennal insertions.

Pronotum nearly as wide as long, gradually narrowed towards apex, narrower than elytra at base. Tibial spurs short.

Abdomen with five visible sternites. Ovipositor long, tubular (extruded), very sparsely hairy at apex; coxites slightly separated at apex, apparently 1-segmented; styli borne on apices of coxites.

Type of the genus: *P. crowsoni* Abdullah.

Remarks. The extinct genus resembles the modern New Zealand genera *Techmessa* and *Exocalopus* in having appendiculate tarsal claws and differs from other Pyrochroid genera in this respect. It is, however, distinct from these two genera and *Techmessodes*, another New Zealand genus, in the shapes of the head and the pronotum, and in not having the antepenultimate tarsal segments lobed below. In the last-mentioned feature, *Palaeopyrochroa* resembles other modern Pyrochroid genera except *Ischalia* from which it again differs in lacking side borders on the prothorax. *Palaeopyrochroa* does not seem to be particularly like any known Pyrochroid genus (see Blair, 1914). However, I do not agree with Blair's definition of Pyrochroidae which excludes forms with appendiculate tarsal claws and *Techmessodes*. Crowson includes them in Pyrochroidae (Crowson, 1955). In conclusion, *Palaeopyrochroa* is more or less intermediate between normal Pyrochroidae and the *Techmessa*-like forms and helps to establish the Pyrochroid affinities of the latter.

Palaeopyrochroa crowsoni Abdullah, new species

(Photographs 3-4)

Holotype. Female, no. 1559 (Scheele collection), in the Geologisches Museum, Hamburg, West Germany.

Colour. Black to fuscous at places.

Vestiture. Pubescence yellowish-white; on elytra consisting of more numerous, short, decumbent hairs and of less numerous erect hairs, nearly twice longer than the previous ones, essentially irregular but at places arranged in longitudinal rows; a third kind of very long, brown, erect, flying hair present along margins of pronotum and elytra.

Surface shining.

Antennae serrate from segments IV-X. Labrum entire at apex.

Scutellum slightly depressed in centre. Elytral apices entire, sutural margins slightly separated there.

Seventh (= fifth visible) abdominal sternite entire at apex.

Measurements in mm.: total length 6, antennal segments I-X: 0.25, 0.10, 0.12, 0.24, 0.25, 0.28, 0.25, 0.25, 0.25, 0.24, and 0.37 respectively. Maxillary palp segments I-IV: 0.05, 0.21, 0.12, and ? 0.20 respectively. Head: width across eyes 0.77; dorsal interocular distance 0.30 ?. Elytron: length 4.3. Front tarsus, segments I-V: 0.30, 0.13, 0.11, 0.05, and 0.16 respectively. Middle tarsus, segments I-V: 0.30, 0.18, 0.12, 0.05, and 0.17 respectively. Hind tarsus, segments I-IV: 0.46, 0.14, 0.07, and 0.18 respectively. Hind tibial spur 0.05.

Remarks. I have much pleasure in naming this species in honour of Dr. Roy A. Crowson.

III. Acknowledgments

For the loan of the material, I am grateful to Dr. Roy A. Crowson, University of Glasgow, Scotland, and to the authorities of the Geologisches Museum, Hamburg, West Germany. For their kind interest in my work, I am grateful to Dr. M. Ian Crichton and Professor Alastair Graham of this Department, and to Dr. Roy A. Crowson. The photographs were taken by the University photographer, Mr. Ian Maclean. The work was carried out while holding a post-graduate Studentship of the University of Reading.

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Acherontia atropos IN LINCOLNSHIRE

The Death's-head Hawk Moth (*Acherontia atropos*) has again been found in Scunthorpe this year. Two were taken to the museum in September. In July a Convolvulus Hawk Moth (*Herse convolvuli*) was seen hovering over a bed of petunias in a Crowle garden, and later it flew into the house.—J. H. DUBDINGTON, 95 East Common Lane, Scunthorpe, Lincs. 16th October 1964.

New Transactions

The Identification and Distribution of British Ants. By Dr. C. A. Collingwood & K. E. J. Barrett. Price 17/6.—Apply Mr. G. Gradwell, Hope Dept. of Entomology, University, Oxford.