MADEIRA INSECTS : BRACONIDAE AND APHIDIIDAE (HYMENOPTERA), WITH DESCRIPTIONS OF 8 NEW SPECIES.

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With 10 figures

ABSTRACT. The author presents a list of Madeiran Braconidae and Aphidiidae, incorporating earlier records with those drawn from material collected by him and his wife during their visits in 1972 - 73, 1980, 1982 and 1985. 84 species are listed of which 73 are new to Madeira. The following new species are described and illustrated : *Bracon chiloecus, B. ericeti, Hormius maderae, H. oreas, H. tenuicornis, Chorebus norae, Diospilus rubricollis, Leiophron maderae.*

RESUMO. O autor apresenta uma lista dos Braconidae e Aphidiidae da Madeira incorporando anteriores assinalamentos aos descobertos no material colhido por ele e pela sua mulher durante as suas visitas em 1972-73, 1980, 1982 e 1985. 84 espécies são referenciadas das quais 73 são novas para a Madeira. As seguintes espécies novas são descritas e ilustradas: *Bracon chiloecus, B. ericeti, Hormius maderae, H. oreas, H. tenuicornis, Chorebus norae, Diospilus rubricolis* e *Leiophron maderae.*

INTRODUCTION

No general list of Madeiran Braconidae (sensu lat.) exists. Wollaston (1858 : 23 - 25) described 7 species as new, 2 of which fall into synonymy. Since that time no additions have been published. The present account attempts to be as complete as possible considering the current state of research in Braconid taxonomy, which is somewhat uneven. Some groups or genera have lately been revised for the Palaearctic region, therefore a more satisfactory list can be given. In other groups the taxonomy is out of date and the author has had to rely largely on his personal research on type material or specimens authenticated by various experts.

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Some identifications are only tentative. Where a definite identification is not possible a species is compared with another which seems to be closely related in order to provide an approximate placing. Most Madeiran Braconidae appear to belong to, or are close allies of, European species. A few probably have affinities with the Ethiopian fauna. A very few may be endemic but this will only become evident after further research.

Unless stated otherwise, specimens were captured by the author ; those marked E. M. G. were taken by his wife. The abbreviation BMNH stands for British Museum (Natural History) ; UM for University Museum, Oxford.

Again we thank our friends in Madeira for all the help they have given during our visits : Mr. G. E. Maul and Dr. Manuel Biscoito (Museu Municipal do Funchal), Mr. Henrique Costa Neves (Serviços Florestais, Funchal) and Dr. Francis Zino (Funchal). Our thanks also to Mr. T. Huddleston and other members of staff in the Department of Entomology, British Museum (Nat. Hist.) for providing help and facilities. My wife deserves a special tribute for her assistance with collecting and transport.

DESCRIPTION OF NEW SPECIES

Braconidae

Braconinae

Bracon Fabricius

Many species of this genus, some inadequately described, are known from the Palaearctic and Ethiopian regions. The two described below are clearly related to the European *B. stabilis* Wesmael and as I have not found any species of this area which appear to agree with them, I venture to described them as new.

Bracon chiloecus sp. n.

♀. Head slightly broader than mesoscutum, 1.75 times as broad as long, relatively dull, with excessively fine isodiametric sculpture ; temples about half length of eyes, curved and slightly convergent. Antennae about 0.6 length of forewing, 17-segmented ; flagellum proximally stout, as thick as fore tibia, but tapering slightly in distal half, with first segment 1.3-1.6 times as long as broad, following segments quadrate or virtually so. Thorax in dorsal view about 1.5 times as long as broad. Mesoscutum about 1.5 times as broad as long, shiny, with obsolescent alutaceous sculpture in places, pilose ; notauli weakly indicated anteriorly. Scutellum slightly broader than long, subtriangular, very weakly convex, polished, with subdecumbent hairs arising from minute pits. Propodeum shiny, with very fine and weak alutaceous sculpture, without median carina. Legs

rather short, relatively stout ; hind femur about 3.7 times as long as broad ; segment 5 of hind tarsus (excluding pretarsus) about as long as 2. Forewing 2.3 - 2.4 times as long as broad ; stigma about 2.5 times as long as broad ; first sector of radius about 0.75 breadth of stigma, second sector hardly longer than first, third 3.2 - 3.6 times as long as second and virtually straight, ending its tip separated from tip of wing by about one third the length of the sector ; second cubital cell small, trapeziform ; first intercubital vein about 1.4 length of second sector of radius, second intercubital slightly shorter than second radial sector ; lower edge of second cubital cell curved. Gaster about 1.2 times as long as head plus thorax ; tergite 1 about as long as broad, with sides curved, hind margin truncate, shiny, with some obsolescent alutaceous sculpture ; following tergites somewhat dull, with fine slightly raised reticulation which becomes rather weaker on the posterior tergites ; suture between tergites 2 and 3 strong, slightly sinuate in middle ; ovipositor sheaths 0.6 - 0.7 length of hind tibia. Length (excluding ovipositor) 2.1 - 2.7 mm.

Colour variable. Females from Ilhéu Chão have the body reddish-yellow with ocellar triangle and occipital surface, 2 sublateral stripes and sometimes also a median mesoscutal stripe, propodeum, metanotum partly, lower part of mesopleuron and the mesosternum, ovipositor sheaths, antennae and tips of tarsi black. Females from the main island of Madeira have thorax, except a V-shaped mark on the mesoscutum, and in one specimen the scutellum, black ; gaster black or at least broadly infuscate dorsally ; coxae black, sometimes also the femora more or less, and the tips of the tibiae and the tarsi infuscate. All have about the basal half of the forewing lightly infumate, the rest subhyaline ; stigma fuscous, with a small to large testaceous basal spot.

♂. As ♀ but antennae longer, 20 - 23 - segmented with flagellar segments decreasing less in length, penultimate 1.6 - 1.7 times as long as broad ; gaster obtuse. Colour tending to be slightly darker, mesopleuron sometimes wholly black, legs sometimes relatively darker.

The ♀ differs from that of *stabilis* Wesmael in having antennae somewhat shorter, with fewer segments ; mesoscutum more shiny, its sculpture obsolescent ; propodeum more weakly sculptured ; tergite 1 of gaster shiny, its sculpture obsolescent, that of tergite 2 not tending to form any rugulosity or striae ; forewing with second cubital cell much shorter relative to its height, third sector of radius slightly longer relative to second.

Holotype ♀, Madeira, Desertas, Ilhéu Chão, 25.viii.1986 (M. de V. Graham) in BMNH.

Paratypes. Same data as holotype, 3 ♂♂, 2 ♀♀ ; Madeira, São Martinho, 1 ♀, 8.v.1980 (E. M. G.) ; near Lagoa of Santo da Serra, 1 ♀, 1.viii.1982.

Bracon ericeti sp. n.

(Fig. 1)

♀. Head about 1.2 times as broad as mesoscutum and 1.7 times as broad as long, sculptured as in *stabilis* Wesmael ; temples about 0.6 length of eyes, curved and slightly convergent. Antennae about 0.7 length of forewing, 18 - segmented ; flagellum more slender than in *chiloecus*, a little more slender proximally but filiform from segment 3 onwards ; first flagellar segment slightly more than twice as long as broad, following segments decreasing gradually in length but the penultimate about 1.3 times as long as broad. Thorax 1.6 - 1.7 times as long as broad. Mesoscutum 1.2 times as broad as long, strongly convex, relatively dull, with extremely fine isodiametric reticulation and very small piliferous punctures, thickly pilose but with a more sparsely pilose strip inside each lateral margin. Scutellum as long as broad, slightly convex, relatively dull. Legs slightly less stout than in *chioecus*, hind femur about 4 times as long as broad ; segment 5 of hind tarsus slightly shorter than 2. Forewing (Fig. 1) 2.5 - 2.6 times as long as broad, similar to that of *chiloecus* but with stigma about 2.7 times as long as broad ; third sector of radius slightly curved upwards, its tip separated by about two thirds its length from apex of wing. Gaster similar to that of *chiloecus* but first tergite rather dull, with extremely fine isodiametric reticulation ; ovipositor sheaths nearly as long as hind tibia. Length (excluding ovipositor) 1.7 - 1.9 mm.

Black ; mandibles mainly reddish ; a spot on inner orbit outside each torulus and a streak on each vertical orbit, obscurely testaceous ; tips of femora very narrowly and in one ♀ about proximal third of hind tibia, reddish. Wings almost uniformly grey - infumate ; venation and stigma fuscous.

♂. Similar to ♀ but antennae about as long as forewing, 21 - 22 - segmented ; flagellum tapering slightly distad, its segments decreasing less, even the penultimate nearly twice as long as broad ; gaster obtuse.

Holotype ♀, Madeira : Ribeira das Cales, ca 1450 m. swept from *Pteridium aquilinum* in grove of *Erica arborea*, 17.viii.1985 (M. de V. Graham) in BMNH.

Paratypes. Same data as holotype, 1 ♂, 1 ♀ ; Achada do Teixeira, 3 ♂♂, 10.viii.1985 (M. de V. G.) in author's collection.

The ♀ differs from that of *stabilis* Wesmael in its much smaller size, fewer antennal segments, duller mesoscutum and scutellum, evenly reticulate tergite 2 of gaster, longer ovipositor, slightly shorter second cubital cell, upcurved third sector of radius, darker legs, uniformly fuscous stigma and almost uniformly grey forewings which tend to be perhaps a little darker basally than elsewhere.

Exothecinae

Hormius maderae sp. n.

(Figs. 2, 4)

♀. Head (Fig. 4) with temples 0.7 - 0.75 length of eyes, curved and converging slightly ; eyes not prominent. Head shiny, without sculpture. Antennae shorter than body and about 0.8 length of forewing, 16 - 19 - segmented ; flagellum slender, about two-thirds as thick as the pedicellus, filiform ; first flagellar segment 3.0 - 3.4 times as long as broad, following segments decreasing very slightly in length, tenth and following each 2.0 - 2.5 times as long as broad. Pronotal collar very finely granulate, rather dull. Mesoscutum (Fig. 2) with notauli rugulose in front, otherwise nearly smooth, becoming weak or fading out just before the hind margin where there is an elongate fovea and, on each side of it, a few smaller foveae. Mesopleuron and sternauli smooth. Propodeum lightly rugulose, somewhat glittering, with a smoother and more shiny panel on each side anteriorly, and with a fine forked carina shaped like an inverted V. Forewing with stigma 3.2 - 3.8 times as long as broad ; first sector of radius equal to or slightly greater than stigmal breadth, second sector about as long as first or hardly longer, third sector straight and nearly reaching tip of wing ; first intercubital vein 1.3 - 1.5 times as long as second sector of radius ; second discoidal cell nearly as long as the first.

Head black with inner and outer orbits broadly reddish, sides of vertex more or less reddish. Thorax black with lower part of mesopleuron, and mesosternum except medially, reddish ; notauli sometimes obscurely reddish. In one specimen the head, except the occipital surface, the mesoscutum and the scutellum are reddish. Antennal pedicellus brownish ; flagellum testaceous proximally, darkening beyond middle to fuscous at tip. Gaster with tergite 1 black, rest testaceous to light brownish with sides darker. Ovipositor sheaths testaceuos. Legs testaceous. Forewing subhyaline or slightly grey-tinged ; stigma yellow with about distal half fuscous to black ; first sector of radius somewhat clouded, this cloud sometimes extending weakly into second cubital cell. Length 1.9 - 2.3 mm.

♂. Antennae a little shorter than body forewing, 20 - 22 - segmented ; flagellum proximally very slightly stouter than in ♀ but tapering slightly in distal half ; first flagellar segment slightly more than twice, penultimate segment not quite twice, as long as broad. Gaster oblong, obtuse. Other features of shape and sculpture as in ♀. Colour as in ♀ but mesopleuron and mesosternum black, tending to be darker, forewing stigma sometimes wholly fuscous.

Holotype ♀, Madeira : 3 km E. of Poiso, 1.viii.1982 (M. de V. Graham) in BMNH.

Paratypes. Madeira : Encumeada de São Vicente, 1 ♀, 18.v.1980 ; Curral dos Romeiros, 1 ♂, 1 ♀, 23.vii.1980 (M. de V. G.), 2 ♀♀, 23.vii.1982

(E. M. G.), 1 ♂, 26.vii.1982 ; Queimadas, 1 ♂, 11.viii.1982 ; Achada do Teixeira, 1 ♀, 10.viii.1985 (E. M. G.) ; Balcões do Ribeiro Frio, 1 ♂, 21.viii. 1985 ; levada da Serra do Faial, between Santo da Serra and Camacha, 1 ♂, 23.viii.1985.

This species does not seem to be identical with any described European or Ethiopian species. The female differs from those of all the Ethiopian species listed by Hedqvist (1965) in having antennae with 19 or fewer segments and the pterostigma bicoloured ; it further differs from females of *caboverdensis* Hedqvist and *insularis* Hedqvist in having temples more rounded and not convergent, sternauli smooth, body more extensively dark.

Hormius oreas sp. n.

♀. Differs from that of *maderae* as follows. Antennae with 21 segments ; flagellum only slightly less stout than the pedicellus, its segments relatively shorter, the first about 2.2 times, distal segments 1.8 - 2.0 times as long as broad. Notauli rugulose in front, otherwise finely punctate, converging posteriorly into a rugulose area which is like that of *tenuicornis* sp. n. (Fig. 3) but slightly smaller. Forewing with second sector of radius 1.7 - 1.75 times as long as the first, third sector slightly curved upwards in its distal part.

Body testaceous with propodeum, mesosternum, and first segment of gaster black ; occipital surface infuscate, in one ♀ also the vertex ; pronotum partly infuscate. Antennae testaceous with last segment of flagellum brown and the two preceding segments slightly brownish. Forewing coloured as in *maderae.*

♂. Unknown.

Holotype ♀, Madeira : Balcões do Ribeiro Frio, 21.viii.2985 (Graham) in BMNH.

Paratype : Queimadas, 1 ♀, 11.viii.1982 (E. M. G.) in author's collection.

The ♀ of *oreas* differs from those of the Ethiopian species listed by Hedqvist (1965) by the combination of 21-segmented antennae which are shorter than the body, second sector of radius much longer than the first, pterostigma bicoloured.

Hormius tenuicornis sp. n.

(Figs. 3, 5)

♀. Head (Fig. 5) with temples 0.52 - 0.58 length of eyes, more convergent than in *maderae.* Antennae with (19 -) 21 - 22 segments, fully as long as body less ovipositor and fully as long as forewing ; flagellum slender, tapering in about distal half, its segments longer than in *maderae,* penultimate 2.5 - 3.0 times as long as broad. Pronotum as in *maderae.* Mesoscutum (Fig. 3) with notauli punctate, broader anteriorly where they

are finely rugulose ; from the front end of each a band of granulate sculpture extends along the side of the mesoscutum ; posteriorly the notauli converge into a large subtriangular rugulose area. Mesopleuron with upper third very finely reticulate ; sternauli rather broad, rugulose. Propodeum as in *maderae* but the forked median carina vague or absent. Forewing : venation much as in *maderae*.

Head reddish with middle of frons, ocellar triangle and occipital surface, black. Thorax black with pronotum mainly to wholly, the posterior area in which the notauli meet, sometimes also the mesopleuron more or less, reddish. Gaster reddish with first tergite black ; ovipositor sheaths testaceous. Wings hyaline or faintly yellowish ; venation light brown ; stigma yellowish with upper and lower edges narrowly brown. Antennae fuscous to black with at most the first flagellar segment slightly paler.

♂. Antennae nearly as long as forewing, 21-22-segmented ; flagellum very similar to that of ♀ but tapering rather more distinctly in distal part. Gaster oblong, obtuse. Shape of head, sculpture and other features as in ♀. Colour as in ♀.

The ♀ of *tenuicornis* differs from the description and figures of *H. caboverdensis* Hedqvist (1965 : 6-7, 8, figs. 2, 3b) in having the head slightly more transverse, with eyes slightly smaller, temples slightly less convergent and more curved, body darker in colour. *H. caboverdensis* ♀ is also said to have antennae shorter than the body, with 20 segments.

Holotype ♀, Madeira : Curral dos Romeiros, 23.vii.1982 (M. de V. Graham) in BMNH.

Paratypes. Madeira : Curral dos Romeiros, 2 ♀♀, 23.vii.1982 (E. M. G.), 1 ♀, 26.vii.1982 (M. de V. G.) ; near Lagoa of Santo da Serra, 1 ♂, 7.viii.1982 ; near Terreiro da Luta, 1 ♀, 7.viii.1982 ; Boca do Risco, 1 ♂, 27.vii.1985 (M. de V. G.).

[**Hormius** sp.

Queimadas, 2 ♂♂, 11.viii.1982 ; between Queimadas and Caldeirão Verde, 1 ♂, 13.viii.1985 ; Fanal de Cima, 1 ♂, 19.viii.1985, Fanal de Baixo, 1 ♂, 19.viii.1985.

I suspect that these males represent another undescribed species but prefer to await discovery of females before venturing to describe it].

Alysiinae

Chorebus norae sp. n.

♀. Head 1.25 times as broad as mesoscutum, 1.6 times as broad as long, hardly wider across temples than across eyes ; temples heardly longer than eyes, rounded and not convergent ; occiput very shallowly excavate ; ocelli in an almost equilateral triangle ; behind the ocellar triangle a shallow furrow runs to edge of occiput. Eyes bare, 1.5 times as

long as broad, separated on vertex by more than their length but ventrally by about 0.8 their length, inner orbits converging moderately ventrad. Head somewhat shiny, wholly and densely clothed with short greyish subdecumbent hairs. Mandible with first and fourth teeth short and triangular, tooth 2 extending far beyond the others and strongly acute, tooth 3 merely indicated by a minute projection on the lower edge of tooth 2. Labial palpi with 4 segments. Antennae 34-segmented, slightly shorter than forewing ; flagellum very slender, tapering slightly distad, with first segment nearly 4 times as long as broad, second 0.7 length of first and nearly 3 times as long as broad, following segments decreasing very gradually in length, penultimate about 2.2 times as long as broad ; flagellum dull, clothed with extremely short hairs. Thorax 1.9 times as long as its breadth across tegulae, its whole surface (except part of mesopleuron) densely clothed with short decumbent greyish pubescence which is especially dense on posterior part of mesopleuron, metapleuron and propodeum, virtually hiding their surfaces. Mesoscutum 1.3 times as broad as long, strongly convex and, like the scutellum, slightly shiny beneath the pubescence ; notauli obsolete ; a small elongate fovea just in front of scutoscutellar suture. Metanotum with a median longitudinal carina which in profile forms an obtuse elevation. Propodeum with vague median carina. About upper third of mesopleuron very finely granulate, rest of surface moderately shiny, with only hair-pits, densely pilose except in the middle where the pilosity is partly absent ; sternauli obsolescent, indicated merely by weak unsculptured depressions. Legs long and slender ; hind coxae densely pubescent, the pubescence even denser dorsally in basal half, forming a rudimentary tuft there ; basitarsus of hind leg nearly as long as the following three segments ; segment 5 of fore and mid tarsi longer than 3 plus 4, of hind tarsi about equal in length to 3 plus 4 ; claws twice as long as pulvillus, slender and strongly curved, slightly swollen basally. Forewing fully 3 times as long as broad, similar to that of *lanigerus* Stelfox (see Griffiths, 1968, fig. 199) but pterostigma even longer and narrower, tapering gradually into the metacarp ; distance between base of pterostigma and inception of first radial sector nearly 3 times the length of the latter, which is slightly greater than breadth of pterostigma ; radial cell nearly 4 times as long as broad ; cross-vein *cua* placed farther basad, its length somewhat greater than its distance from vein *M.* Gaster 1.2 times length of head plus thorax, slightly broader than thorax across tegulae, 2.7 times as long as broad, gradually widening from base to somewhat beyond middle, then rapidly tapering to its obtusly angulate apex ; tergite 1 about 1.2 times as long as its apical breadth, slightly more than twice as broad at apex as at base, matt and very densely clothed with decumbent grey pubescence ; following tergites slightly shiny and extremely finely but very densely punctate, densely clothed with grey pubescence (on tergite 2 almost as densely as on 1). Tip of hypopygium at 0.85

length of gaster. Ovipositor sheaths about 0.65 length of hind basitarsus, visible only in profile.

Black ; mandible partly, palpi, antennal scape and pedicellus beneath, testaceous. Wings slightly grey-tinged, venation and pterostigma brownish ; legs testaceous with mid coxae at base and hind coxae mainly black ; tarsi brownish distally, segment 5 fuscous. Length 4 mm.

♂. Unknown.

Holotype ♀, Madeira : on levada path between Queimadas and Caldeirão Verde, 13.viii.1985 (Mrs. E. M. Graham) in BMNH.

This fine species belongs to the *affinis*-group (Griffiths, 1968 : 115) of *Chorebus* and is related to *lanigerus* (Stelfox, 1957), described from Ireland. The ♀ differs from that of *lanigerus* in greater number of antennal segments, longer and narrower gaster which has the second and following tergites very finely punctate and densely pubescent (smooth and with only a preapical row of hairs on each tergite in *lanigerus*), in some characters of the forewing (see above) and in a few smaller features. The species differs from most other members of its tribe (Dacnusini) in the sculpture and vestiture of the gaster.

The biology of *C. norae* is unknown. The related species *C. lanigerus* (Stelfox) has been reared from *Cerodontha calosoma* Hendel (Dipt., Agromyzidae) (see Griffiths, 1968 - 110).

Helconinae

Diospilus Halliday

The species of this genus are for the most part separated by rather subtle characters. I believe that the following species is undescribed.

Diospilus rubricollis sp. n.

(Figs. 6, 7)

♀. Head (Fig. 6) 1.25 times as broad as mesoscutum, about 1.7 times as broad as long ; temples 1.2 times as long as eyes, converging slightly, curved. Eyes separated by 1.6 times their length. Clypeus separated from face by an impressed line, polished, its anterior half with small punctures, anterior margin weakly curved. Tentorial pits separated by about 1.5 times their width. Rest of head polished, with minute, moderately close punctures. Malar space about equal to breadth of base of mandible ; malar sulcus obsolescent except for a pit at its lower end. Antennae slightly longer than head plus thorax, 27-segmented ; first flagellar segment about 3 times as long as broad, following segments decreasing gradually in length, penultimate about 1.3 times as long as broad ; flagellum tapering very slightly in distal third. Pronotum polished, with a row of punctures along front edge, and the femoral groove

rugulose. Mesoscutum polished, with minute piliferous punctures, these fairly dense on the middle lobe, rather less so on the lateral lobes ; notauli sharp, weakly curved, punctate, meeting just before hind margin of mesoscutum. Propodeum shiny, irregularly areolated ; some parts of the areae slightly punctate or with irregular wrinkles. Mesopleuron mainly smooth ; sternauli punctate, strongly curved, extending to hind margin above mid coxae but not quite reaching front margin. Forewing venation similar to that of *oleraceus* Haliday, with first sector of radius about 0.25 breadth of stigma, third sector slightly curved in its proximal half, areolet higher than broad, with sides subparallel. Cubital vein of hindwing straight in about proximal half, then curved slightly downwards. First tergite of gaster (Fig. 7) about as long as broad, convex, polished and smooth except for a triangular area on each side behind the spiracle, this being very finely irregularly striate ; the triangular areas pilose, the rest bare. Ovipositor sheaths as long as thorax plus gaster.

Black ; antennal scape and pedicellus testaceous, the latter black dorsally ; front margin of clypeus, and mandibles except their teeth, reddish ; palpi testaceous ; prothorax reddish. Legs including all coxae testaceous ; all tibiae infuscate over about their distal half ; all tarsi black. Tegulae testaceous. Wings subhyaline ; subcosta and stigma black, veins reddish in the basal part the wing, otherwise fuscous. Length (not counting ovipositor) approximately 3.5 mm.

♂. Unknown.

Differs from the ♀ of *oleraceus* Haliday in extensively smooth basal tergite of gaster, greater number of antennal segments (24 - 25 in *oleraceus*) and red prothorax. Differs from ♀ of *capito* Nees in greater number of antennal segments (in *capito* 21 - 24), somewhat longer ovipositor sheaths, greater size and red prothorax.

D. robustus Reinhard (a species I have not seen) from the description resembles *rubricollis* in the first segment of the gaster, but should have a relatively shorter ovipositor, straight radial vein in the forewing, and black prothorax.

Holotype ♀, Madeira : near Pousada dos Vinháticos, on grassy slope near pinewood, 18.v.1980 (Mrs. E. M. Graham) in BMNH.

Paratype. Madeira : Fanal de Cima, 1 ♀, 19.viii.1985 (M. de V. G.) in author's collection.

Euphorinae

Leiophron Nees (=**Peristenus** Forster)

The most recent key to world genera of Euphorinae (Shaw, 1985 : 301 - 305) separates *Peristenus* and *Leiophron* as follows :

'17 (16) Petiole fused ventrally at base (Fig. 40) ; occipital carina complete ... ... *Peristenus*

— Petiole not fused ventrally (Fig. 45) ; occipital carina absent dorsally (Fig. 42) ... Leiophron'

However, amongst the species referred to *Peristenus* by Loan (1974 : 210) and Shaw (1985) two, *orchesiae* Curtis and *grandiceps* (Thomson) do not have the petiole fused ventrally at base ; moreover, *grandiceps* (and several species in the Ethiopian fauna, as well as the new species described below) have the occipital carina more or less broadly interrupted dorsally. Thus already the distinctions claimed to exist between *Leiophron* and *Peristenus* break down. Provisionally, therefore, I prefer to treat them as a single genus, *Leiphron*.

Leiophron maderae sp. n.

(Figs. 8 - 10)

♀. Head (Fig. 8) 1.4 - 1.5 times as broad as long ; temples hardly longer than eyes, converging very slightly. Occipital carina interrupted dorsally a space about equal to that separating centres of lateral ocelli. Eyes separated on face by 0.66 their length, inner orbits converging fairly strongly. Frons shiny, without any trace of punctures but with a few hairs near each orbit, without a median longitudinal carina. Face densely clothed with silvery-white hairs. Malar space slightly less than basal width of mandible. Antenna hardly longer than head plus thorax, 17 - 19 - segmented ; flagellum slender proximally but thickening slightly and gradually distad ; first flagellar segment (including the anellus) 3.0 - 3.5 times as long as broad, following segments decreasing gradually in length, penultimate very slightly longer than broad. Middle lobe of mesoscutum with a few very small and shallow piliferous punctures in front half ; lateral lobes virtually impunctate ; notauli strong, punctate. Scutellum shiny, with a few minute punctures. Pronotum finely rugulose-punctate, its upper (posterior) margin smoother. Mesopleuron shiny ; sternauli rugulose, with some finer sculpture spreading out on either side of it ; some wrinkles and punctures a little below base of forewing ; otherwise virtually smooth. Fore tarsi with segment 2 about 1.5 times as long as broad, 3 hardly longer than broad, 4 as long as broad, 5 stout and about 1.5 times as broad as 4, hardly twice as long as broad. Forewing (Fig. 9) with stigma 2.1 - 2.2 times as long as broad ; first sector of radius extremely short or punctiform ; length of radial cell on costal margin about one-third length of stigma. Hindwing with closed submedianellan cell. Gastral petiole (Fig. 10) closed in anterior half ventrally, 1.6 - 1.8 times as long as broad, nearly twice as broad at apex as at its narrowest part, with fine striations mixed with some small punctures.

Body black ; clypeus and mandibles testaceous. Antennae testaceous, gradually darkening from third flagellar segment onwards to dark brown apically. Legs inlcuding all coxae testaceous. Wings faintly yellowish in proximal half ; venation, including stigma, yellowish - testaceous, also tegulae. Length 2.0 - 2.4 mm.

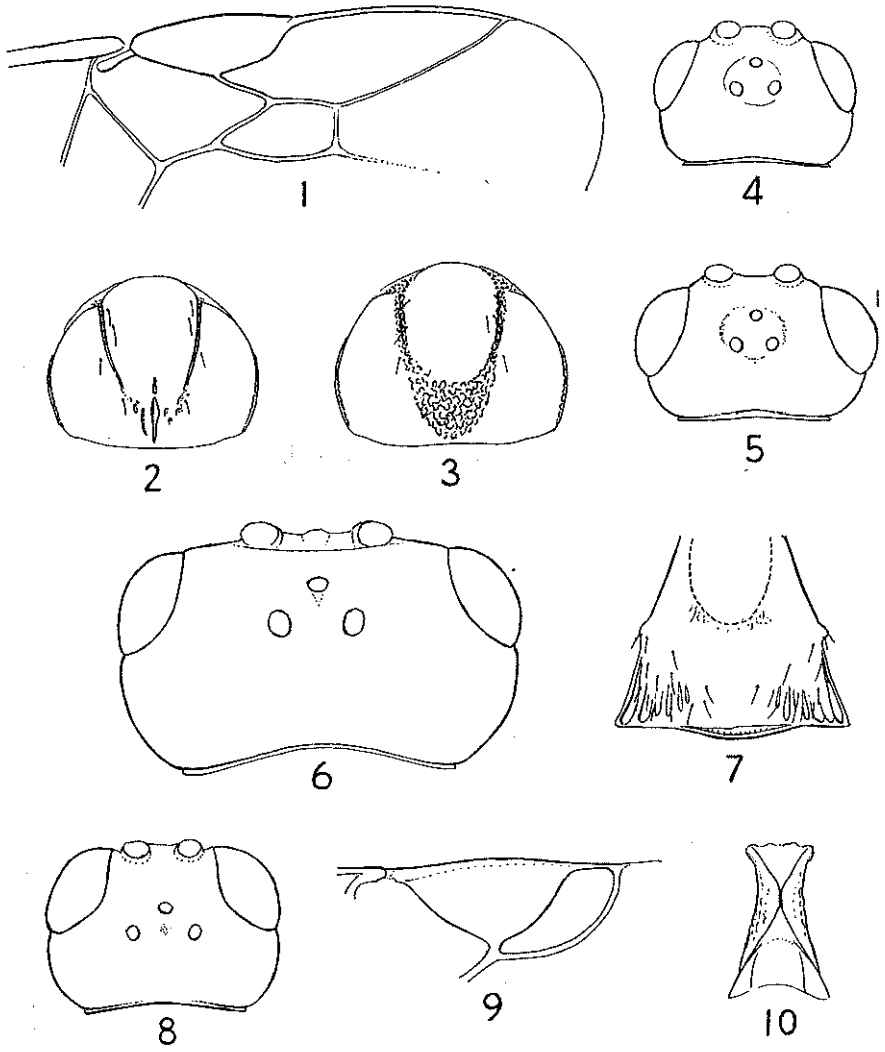

Fig. 1. — *Bracon ericeti* sp. n., ♀, part of forewing. Fig. 2. — *Hormius maderae* sp. n., ♀, mesoscutum. Fig. 3. — *Hormius tenuicornis* sp. n., ♀, mesoscutum. Fig. 4. — *Hormius maderae* sp. n., ♀, head. Fig. 5. — *Hormius tenuicornis* sp. n., ♀, head. Fig. 6. — *Diospilus rubricollis* sp. n., ♀, head. Fig. 7. — The same, ♀, gastral petiole. Fig. 8. — *Leiophron maderae* sp. n., ♀, head. Fig. 9. — The same, ♀, part of forewing. Fig. 10. — The same, ♀, gastral petiole, ventral view.

♂. Antennae with 20 (7 specimens) or 21 (8 specimens) segments : flagellum proximally somewhat stouter than in ♀ but tapering very slightly in distal half ; first flagellar segment 2.2 - 2.5 times as long as broad, second segment equal in length to first, following segments hardly shorter and about twice as long as broad, a few apical segments slightly shorter and somewhat less than twice as long as broad. Genitalia small, their length slightly more than half that of tergite 1 ; very similar to those of *pallipes* Curtis, and of *grandiceps* (Thomson) as figured by Loan (1974, fig. 2), i.e., with apex of aedeagus rounded-subtruncate, aedeagus projecting somewhat beyond tips of parameres.

Colour as ♀ but antennae fuscous with only scape, pedicellus and sometimes base of first flagellar segment, slightly paler. In dark specimens the mid and hind tibiae, and their tarsi, are brownish-testaceous.

Holotype ♀, Madeira : Machico, Rocha Alta, 1.i.1973 (M. de V. Graham) in BMNH.

Paratypes. Same locality as holotype : 2 ♂♂, 7 ♀♀, 1.i.1973 ; 2 ♂♂, 1 ♀, 5.i.1973, 15 ♂♂, 12 ♀♀, **8.i.1973,** 6 ♂♂, 3 ♀♀, 9.i.1973 (M. de V. G.) in author's collection.

L. maderae is clearly related to certain species of the *Peristenus*-section found in the Ethiopian region. I have compared it with all the types of African species that are available and with the descriptions of the other species. It appears to be most nearly related to *L. tropicalis* (de Saeger) (*Euphorus tropicalis* de Saeger, 1946 : 223 - 225). It differs in having shorter antennae with fewer segments (about as long as body and with 21 segments in ♀, 23 in ♂, of *tropicalis*) with the first flagellar segment relatively a little shorter ; length of radial cell on costal margin shorter (slightly less than half length of stigma in *tropicalis*) ; tergite 1 of gaster relatively shorter (2.3 times as long as its apical breadth in *tropicalis*) ; size rather less (body-length 2.4 - 2.8 mm. in *tropicalis*).

LIST OF DESCRIBED MADEIRAN SPECIES

Braconidae

Doryctinae

Heterospilus divisus (Wollaston)

Described (as *Clinocentrus divisus*) by Wollaston (1858 : 24), from Funchal. I have examined the single ♀, presumably holotype, in BMNH. The species was transferred to *Heterospilus* by Shenefelt (1975).

Ontsira antica (Wollaston)

Described (as *Clinocentrus anticus*) by Wollaston (1858 : 24) from material taken by him at Santana in 1850. There is only one ♀, registered as Type, in BMNH, presumably holotype.

Spathius moderabilis Wilkinson

Described by Wilkinson from 2 males and 6 females taken by Wollaston, localities unknown. Additional records : Madeira, Caldeirão Verde, 1 ♂, 9.viii.1982 ; Balcões de Ribeiro Frio, 1 ♀, 21.viii.1985 (M. de V. G.).

S. pedestris Wesmael

Recorded (as *Spathius apterus* sp. n.) by Wollaston (1858 : 24 - 25) from São Vicente. I have examined the single ♀, presumably holotype, in BMNH.

Braconinae

Bracon hebetor Say

Madeira : unlocalised but numbered 1239 on the lower surface of their cards, 1 ♂, 1 ♀, in Wollaston Madeira collection, UM, Oxford.

B. ? variator Nees

Machico, Rocha Alta, 1 ♂, 12.v.1980.

Rogadinae

Aleiodes bicolor (Spinola) f. **tristis** Wesmael

Vinte e Cinco Fontes, 1 ♀, 27.vii.1982 ; Rabaçal, 1 ♀, 29.vii.1985, 1 ♀, 9.viii.1985.

A. ductor (Thunberg)

This is the species described as *Rogas rufoater* by Wollaston (1858 : 24) from material taken by him near Santana and on Porto Santo. He described his material as male but his collection contains 1 male and 3 females. The male, selected as lectotype by Dr. van Achterberg, has wholly black legs. It seems to be the same as *ductor* (Thunberg) a species widely distributed in southern Europe. There is another Wollaston ♀ in UM, Oxford. New record : Madeira, 3 km east of Poiso, 1 ♀, 17.viii. 1985 (M. de V. G.) ; this has black legs like the male lectotype. The species has been recorded from the Canary Islands.

A. dimidiatus (Spinola)

Near Lagoa of Santo da Serra, 2 ♂♂, 5.viii.1982 (Mrs. E. M. Graham).

A. sp. n.

Near Lagoa of Santo da Serra, 1 ♀, 29.vii.1982, 1 ♀, 22.vii.1985. I

have taken this species in southern England, very early in the year. It appears to be undescribed and will probably be described by Dr. van Achterberg in a forthcoming paper.

A. sp. near **testaceus** (Spinola)

Fanal Baixo, 1 ♀, 30.vii.1985. I am not able to find a name for this species.

Opiinae

Opius rudis Wesmael

São Martinho, 1 ♂, 8.v.1980. Widespread in Europe.

Opius sp.

Massif of Lombada das Vacas, 1 ♀, 11.viii.1985. Appears to belong to the species-group of *consors* Fischer (1957 : 332). It resembles *campanariae* Fischer (1959 : 82) in its elongate pterostigma and long first sector of radius but differs (from the description) in having sternauli, second sector of radius only about 1.5 times length of $cuqu_1$ and third sector of radius more than twice as long as the second, gaster not pale at base. I cannot find a name for it amongst the very large number of species described from the Palaearctic and Ethiopian regions and it may be undescribed.

Alysiinae

Alysia manducator (Panzer)

Curral dos Romeiros, 1 ♀, 15.v.1980, 1 ♀, 22.vii.1985. A widely distributed European species.

A. ? **curtungula** Thomson

Ribeira Brava, near Serra de Água, 1 ♂, 19.v.1980.

Pentapleura pumilio (Nees)

Curral dos Romeiros, 2 ♀♀, 15.v.1980. Known from Europe, Iceland, Faroes and Mongolia.

Dapsilarthra rufiventris (Nees)

Abundant at Curral dos Romeiros in July 1985 ; also seen near João do Prado. Madeiran females have the gaster reddish only in the middle, like some darker European forms ; the distal third of the hind tibiae is sometimes brownish and the hind tarsi slightly darkened.

Orthostigma pumila (Nees)

Widely distributed in Madeira : both sexes were taken at Curral dos Romeiros, forest 3 km east of Poiso, Balcões, Queimadas, Fanal Baixo and Machico.

O. ? sordipes Thomson

Queimadas, 1 ♂, 14.v.1980.

O. sp.

3 km east of Poiso, 1 ♂, 1 ♀, 7.viii.1982.

Aspilota caudata Thomson

Widespread and frequent in forest at intermediate and higher levels. We have taken females at Curral dos Romeiros, forest east of João do Prado, Balcões and Queimadas.

A. fuscicornis Haliday

We have taken a number of specimens which appear all to belong to this species, at Curral dos Romeiros, near João do Prado, Balcões, Rabaçal, Vinte e Cinco Fontes, the Fanal, Machico (Rocha Alta). They vary much in size, some being unusually large. The smaller females seem to agree with the type of *fuscicornis*, which I have examined. Larger females have the head very slightly wider across the temples than across the eyes (f. *dilatata* Thomson).

About 6 other species of *Aspilota* were taken but definitive names cannot be applied to them at present.

Synaldis lacessiva Fischer

São Martinho, 2 ♂♂, 1 ♀, 8.v.1980, 1 ♂, 10.v.1980, 1 ♀, 21.v.1980, 1 ♀, 26.v.1980, 1 ♂, 20.vii.1985 ; Curral das Freiras, 1 ♀, 22.v.1980 ; Curral dos Romeiros, 1 ♀, 20.vii.1982. These seem to agree with the description of *lacessiva*, described from Austria, although they have darker legs.

S. distracta (Nees)

Machico, Rocha Alta, 2 ♀♀, 5.i.1973 ; Curral dos Romeiros, 1 ♀, 13.v.1980, 1 ♀, 15.v.1980 ; Queimadas, 1 ♀, 14.v.1980, 1 ♂, 11.viii.1982 : Vinte e Cinco Fontes, 1 ♀, 27.vii.1982 ; Caldeirão Verde, 1 ♀, 9.viii.1982 ; massif of Lombada das Vacas, 2 ♂♂, 11.viii.1985. A widey distributed species in Europe.

Aphaereta minuta (Nees)

Queimadas, 1 ♀, 10.viii.1985.

A. sp. near **minuta** (Nees)

São Martinho, 1 ♀, 8.v.1980 (M. de V. G.), 1 ♀, 9.v.1980 (Mrs. E. M. Graham). These specimens do not seem to be within the range of variation of *minuta* and do not agree with any other described Palaearctic species. They are larger, about 2.5 mm. in length, with 20-segmented antennae, which have the flagellum slightly thicker than in *minuta* and with slightly shorter segments, the seventh and following barely twice as long as broad, the first segment only about 3 times as long as broad.

Phaenocarpa ruficeps (Nees)

Several specimens at Machico (Rocha Alta) and Curral dos Romeiros. A widely distributed European species.

Dacnusa sp. near **temula** Haliday

Balcões de Ribeiro Frio, 1 ♂, 21.viii.1985 (Mrs. E. M. Graham).

D. pubescens (Curtis)

Already recorded from Madeira by Nixon (1948 : 211). New records : near Santo da Serra, 1 ♀, 31.xii.1972 ; Queimadas, 1 ♀, 14.v. 1980 ; 3 km east of Poiso, 1 ♀, 1.viii.1982. There is a ♂, collected by Wollaston, numbered 1320 and labelled 'Alysia areolaris' in UM, Oxford.

Exotela flavicoxa (Thomson)

Near Santo da Serra, 1 ♂, 31.xii.1972 ; Machico, Rocha Alta, 1 ♂, 8.i.1973, 1 ♂, 9.i.1973 ; Chão dos Balcões, 1 ♀, 17.viii.1985.

Chorebus affinis (Nees)

Curral dos Romeiros, 2 ♂♂, 13.v.1980 (M. de V. G.), 3 ♂♂, 15.v. 1980 (E. M. G.), 1♂, 9.viii.1985 ; Fajã da Nogueira, 1 ♀, 24.vii.1985 (E. M. G.) ; Ribeiro Bonito, 2 ♂♂, 14.viii.1985 (M. de V. G.).

C. cyclops (Nixon)

Just east of João do Prado, 3 ♂♂, 1 ♀, 22.vii.1985 ; 3 km east of João do Prado, 2 ♂♂, 27.vii.1985, 6 ♂♂, 1 ♀, 5.viii.1985 (M. de V. G.) ; Curral dos Romeiros, 1 ♂, 9.viii.1985 (E. M. G.).

This European species ranges south to Spain and the Madeiran specimens do not differ appreciably from the latter except in having mainly black legs.

Microgasterinae

The classification of this subfamily is currently being revised and seminal papers like that of Mason (1981) have still to be fully evaluated. As a basis for species determinations I have used particularly Nixon's papers (1965, 1972, 1973, 1974) and those of Papp (1976, 1978, 1979, 1983), supplemented by comparison with type specimens. For generic placing I have followed as far as possible the work of Mason (1981). Some species cannot be positively identified at present and my list must be considered as very tentative. Many species found in Madeira no doubt belong to the European fauna but I have not assumed that all do so.

Mirax rufilabris Haliday

Near Terreiro da Luta, 1 ♀, 7.viii.1982.

Dolichogenidea halidaii (Marshall)

Balcões de Ribeiro Frio, 2 ♀♀, 21.viii.1982, 1 ♀, 21.viii.1985 ; Vinte e Cinco Fontes, 1 ♂, 27.vii.1982 (M. de V. G.) ; Curral dos Romeiros, 1 ♀, 22.vii.1985 (E. M. G.).

D. phaloniae (Wilkinson)

Between Cruzinhas and Fanal, 1 ♀, 28.vii.1982 ; just east of João do Prado, 1 ♀, 23.vii.1985 ; 5 km north of Canhas, on road to Paul da Serra, 3 ♀♀, 1.viii.1985 ; Chão dos Balcões, several ♂♂, 1 ♀, 17.viii.1985 ; on levada da Serra do Faial between Santo da Serra and Camacha, 1 ♀, 23.viii.1985.

D. ? propinquus (Papp)

Curral dos Romeiros, 1 ♀, 20.vii.1982 ; Funchal, roof-terrace of Quinta do Sol, on flowers of *Argyranthemum pinnatifidum*, 2 ♂♂, 1 ♀ ; near Lagoa of Santo da Serra, 3 ♀♀, 7.viii.1985 ; levada do Faial between Santo da Serra and Camacha, 1 ♀, 23.viii.1985.

D. near **litae** (Nixon)

Desertas, Ilhéu Chão, 3 ♂♂, 1 ♀, 25.viii.1985. Very close to *litae* but ovipositor sheaths only about 0.7 length of hind tibia, stigma perhaps a little narrower, mid tibiae more broadly infuscate apically.

D. near **phaola** (Nixon)

São Martinho, 1 ♂, 8.v.1980, 1 ♀, 9.v.1980, 1 ♀, 20.vii.1985 ; near Pousada dos Vinháticos, 1 ♀, 19.v.1980.

Very near *phaola* Nixon but antennal flagellum slightly thinner, mesoscutum and scutellum relatively dull, with larger and more distinct punctures, discoidal cell slightly shorter in proportion to its height.

D. sp.

Fanal de Cima, 1 ♀, 19.viii.1985, in Til-forest.

D. sp.

São Lourenço, between Prainha and Abra, 1 ♀, 23.vii.1985. This and the next species are very like *Pholetesor circumscriptus* in size, colour and general facies, but have striate hypopygium and shiny mesoscutum.

The present species is small (length 1.8 mm.) ; tegulae, stigma and legs except coxae yellow ; ovipositor slightly longer than hind tibia ; tergites 1 and 2 virtually smooth ; mesoscutum polished, with obsolescent punctures.

D. sp.

Queimadas, 1 ♀, 11.viii.1982 (E. M. G.) ; massif of Lombada das Vacas, 1 ♀, 11.viii.1985 (M. de V. G.) ; Fanal de Cima, 1 ♂, 19.viii.1985 (E. M. G.).

Very like the preceding species but ovipositor slightly shorter than hind tibia, mesoscutum slightly less polished.

Pholetesor circumscriptus (Nees)

Curral dos Romeiros, 1 ♀, 20.vii.1982 (E. M. G.), 1 ♀, 26.vii.1982 (M. de V. G.), 1 ♀, 22.vii.1985 (E. M. G.), 1 ♀, 26.vii.1985 (M. de V. G.) ; Chão da Ribeira, 1 ♂, 7.viii.1985 ; Caldeirão Verde, 1 ♂, 9.viii.1982.

I believe this is *circumscriptus* although tergite 1 is very weakly sculptured.

Apanteles pinicola Lyle

Santa Cruz, Ribeira Boaventura, 1 ♂, 1 ♀, 5.i.1973.

A. near **pinicola** Lyle

Between Cruzinhas and Fanal, 1 ♂, 1 ♀, 28.vii.1982 ; Fanal de Cima, in Til-forest, 1 ♂, 19.viii.1985 ; levada da Serra do Faial between

Santo da Serra and Camacha, 2 ♀♀ 23.viii.1985 ; Machico, Roca Alta, 1 ♀, 8.i.1973. Females have slightly longer ovipositor and darker legs than *pinicola*.

A. sp. near **metacarpalis** Thomson

São Martinho, 1 ♂, 9.v.1980.

Choeras suffolciensis (Morley)

Curral dos Romeiros, 1 ♀, 13.v.1980, 3 ♀♀, 20.vii.1982, 1 ♀, 26.vii.1985 ; Cruzinhas do Fanal, 1 ♂, 28.vii.1982 ; Montado dos Pecegueiros, 1 ♂, 3.viii.1982 ; Fanal Baixo, 1 ♂, 30.vii.1985 ; 5 km north of Canhas, 3 ♂♂, 1 ♀, 1.viii.1985 ; Balcões de Ribeiro Frio, 2 ♀♀, 21.viii.1985 ; levada da Serra do Faial, 2 ♂♂, 1 ♀, 23.viii.1985.

Females are the form with more or less red femora as described by Nixon (1965 : 228).

Papp (1981 : 138) considered *suffolciensis* to be a synonym of *dorsalis* (Spinola) but Spinola's description disagrees because it stated that the first three segments of the abdomen were rugose and the ovipositor hardly visible.

? **C.** sp.

Curral dos Romeiros, 1 ♀, 13.v.1980. This runs in Nixon's key to genera of Microgasterini (1970 : 13) to *Promicrogaster* but fits neither of his species-groups. It may really belong to *Choeras*, to which Mason (1981) refers some species previously placed in *Promicrogaster*.

Sathon lateralis (Haliday)

Vinte e Cinco Fontes, 1 ♀, 27.vii.1982.

Cotesia sp. near **memnon** (Nixon)

Curral dos Romeiros, 2 ♀♀, 20.vii.1982 (E. M. & M. de V. G.), 1 ♀, 26.vii.1985 ; levada da Serra do Faial, between Santo da Serra and Camacha, 1 ♀, 23.viii.1985.

C. sp. near **cupreus** (Lyle)

3 km east of Poiso, 1 ♀, 1.vii.1982.

Microplitis spectabilis (Haliday)

Curral das Freiras, 1 ♀, 22.v.1980. Recorded from Europe and Morocco (Nixon, 1970 : 12).

M. sp. near **vidua** (Ruthe)

Ribeiro Frio, on bush in Arboretum, 1 ♂, 21.viii.1985.

Gen. and sp. indet.

Pico Ruivo (summit), 1 ♂, 22.vii.1982.

Cheloninae

These appear to be absent from Madeira, except for the following species :

Phanerotoma maculata (Wollaston)

Described (as *Ascogaster maculata*) by Wollaston (1858 : 24) from a single specimen taken on the summit of Pico Ruivo. The species was recently re-discovered by us at Ribeira das Cales and Achada do Teixeira (Graham, 1986, in press).

Macrocentrinae

Macrocentrus collaris (Spinola)

Already recorded from Madeira by Eady & Clark (1964 : 120). Wollaston's collection contains the following specimens from various undetermined localities : 6 ♂♂, 9 ♀♀, numbered on the underside of their cards 1063, 1068, 1138, 1179, 1298, 1299 (BMHN) ; also 3 ♀♀ numbered 1063 in UM, Oxford.

Other records. Funchal, 3 ♀♀, 11.vi.1962, 15.vi.1962, 19.vi.1962 (E. W. Classey) ; Monte, 1 ♀, xi.1960 (N. L. H. Krauss) ; São Martinho, 1 ♀, 8.v.1980 (Graham) ; near Pousada dos Vinháticos, 1 ♀, 18.v.1980 (Graham). Porto Santo : 1 ♀, vi.1962, 1 ♀ between 21 and 27.ii.1963 (E. W. Classey).

M. linearis (Nees)

I have taken a number of what appears to be this common European species in Madeira. They all have propodeum and dorsal surface of gaster more or less infuscate, sometimes also sides of thorax partly. Specimens from Fanal Baixo are relatively larger (♀ body less ovipositor 5 - 5.7 mm.) and the pterostigma is testaceous with at most the lower border darker. Those from Ribeira das Cales are smaller (♀ body 4 - 4.7 mm.) and the pterostigma is fuscous. In European specimens the pterostigma in not wholly fuscous and the Ribeira das Cales specimens evidently represent a darker Madeiran form. Records are : Fanal Baixo, in Til-laurel forest, 2 ♂♂, 2 ♀♀, 30.vii.1985, 1 ♂, 6 ♀♀, 19.viii.1985 ; Ribeira das

Cales, amongst *Pteridium aquilinum* in grove of *Erica arborea*, several ♂♂, 4 ♀♀, 17.viii.1985.

Helconinae

Blacus exilis (Nees)

Massif of Lombada das Vacas, 1 ♀, 11.viii.1985.

B. humilis (Nees)

Curral dos Romeiros, 1 ♂, 26.vii.1982 ; Queimadas, 1 ♂, 1♀, 11. viii.1982 (E. M. G.), 1 ♂ (M. de V. G.) ; levada da Serra do Faial, 1 ♂, 1 ♀, 23.vii.1985.

Euphorinae

Meteorus cinctellus (Spinola)

3 km east of Poiso, 6 ♀♀, 26.vii.1982, 1 ♀, 7.viii.1982 ; Vinte e Cinco Fontes, 1 ♀, 27.vii.1982 ; Lagoa do Fanal, 1 ♀, 28.vii.1982. Widely distributed in Europe.

M. gyrator (Thunberg)

Near Santo da Serra, 1 ♀, 31.xii.1972 ; Machico, Rocha Alta, 1 ♀, 5.i.1973 ; Curral dos Romeiros, 1 ♂, 23.vii.1982 ; Terreiro da Luta, 1 ♀, 7.viii.1982 ; 3 km east of Poiso, 1 ♀, 7.viii.1982 ; 5 km north of Canhas, 1 ♀, 1.viii.1985 ; Balcões de Ribeiro Frio, 2 ♀♀, 21.viii.1985. All females have the head and thorax (except propodeum) testaceous.

M. versicolor (Wesmael)

Near Santo da Serra, 1 ♀, 31.xii.1972 ; Curral dos Romeiros, 1 ♂, 1 ♀, 15.v.1980, 1 ♀, 20.vii.1982 (E. M. G.), 1 ♀, 22.vii.1985 ; 3 km east of Poiso, 1 ♀, 7.viii.1982. 1 ♂, 1 ♀, 5.viii.1985 ; Balcões de Ribeiro Frio, 1 ♀, 21.viii.1985 ; Queimadas, 1 ♂, 11.viii.1982. A widely distributed Palaearctic species.

Perilitus coccinellae (Schrank)

Machico, Rocha Alta, 1 ♀, 9.i.1973.

Microctonus debilis (Wollaston)

Described (as *Perilitus debilis*) by Wollaston (1858 : 23) from specimens taken 'in the chestnut-woods of S^{ta} Anna, during the summer of 1850'. New records : Curral dos Romeiros, 3 ♀♀, 13.v.1980 (E. M. G.),

1 ♀, 15.v.1980, 1 ♀, 22.v.1980 ; Terreiro da Luta, 1 ♀, 7.viii.1982 ; Balcões de Ribeiro Frio, 1 ♀, 21.viii.1985 ; Fajã da Nogueira, 1 ♀, 24.vii.1985 ; 3 km east of João do Prado, 1 ♀, 22.vii.1985.

Pygostolus falcatus (Nees)

Pico Ruivo, on *Erica arborea* at summit, 1 ♂, 22.vii.1982.

Ancylocentrus edentatus (Haliday)

Curral dos Romeiros, 1 ♀, 9.vii.1985.

Wesmaelia petiolata (Wollaston)

Described (as *Euphorus petiolatus*) by Wollaston (1858 : 23) from Santana. There are 3 specimens from his collection in BMNH.

Syntretus vernalis (Wesmael)

Between Camacha and Poiso, in forest near Pico da Silva, 3 ♀♀, 23.vii.1982 ; Balcões de Ribeiro Frio, 1 ♀, 21.vii.1982.

Aphidiidae

Ephedrus plagiator (Nees)

Common in damp forest at Curral dos Romeiros ; Terreiro da Luta ; east of João do Prado ; Balcões ; Queimadas ; Fajã da Ovelha, etc.

Praon volucre (Haliday)

Curral dos Romeiros, 1 ♀, 15.v.1980 (E. M. G.). Recorded from Canary Islands and from Europe, Portugal to USSR, near East. Has many hosts.

Aphidius Nees

The taxonomy of this genus is difficult because there are few good characters for distinguishing species. Some that have been frequently used may be too variable to be reliable (Pungerl, 1983). I feel reasonably certain about the identity of only a few Madeiran species.

Aphidius ervi Haliday

Curral dos Romeiros, 1 ♀, 13.v.1980, 1 ♂, 20.vii.1982 (E. M. G.), 1 ♂, 1 ♀, 23.vii.1982, 2 ♂♂, 22.vii.1985, Ribeira Brava near Serra de Água,

4 ♂♂, 19.v.1980 ; near Pousada dos Vinháticos, 1 ♂, 19.v.1980. A parasite of the pea aphid, *Acyrthosiphon pisum*. Widely distributed in western Palaearctic from Algeria and Morocco to Iraq. Introduced to North America.

A. pascuorum Marshall

Common at São Martinho, on the grassy slopes of Pico das Arrudas, in May, 1980 : we also found it near Machico on 1.i.1973, and at Curral dos Romeiros in July, 1985.

The Madeiran specimens have the body black, with clypeus and usually the face, sometimes also the prothorax more or less, testaceous ; legs relatively dark with hind and sometimes mid coxae black, femora more or less infuscate, especially the hind pair, tibiae usually more or less infuscate distally. All females, both the largest and smallest, have 16-segmented antennae. They agree very well with the description of *macropterus* Quilis Pérez (1931 : 54) which Mackauer (1968 : 52) placed as a synonym of *pascuorum*, except that they have darker legs. The holotype ♀ of *pascuorum* has relatively dark legs but has 17-segmented antennae although it is a small specimen.

The species has several aphid hosts on grasses, such as *Metopolophium festucae* (Theobald) and *Macrosiphum avenae* (F.). The slopes of Pico das Arrudas, where *pascuorum* is common, are covered with grasses of several genera, including *Hyparrhenia*, *Avena*, *Briza* and *Lagurus*.

A. urticae Haliday

São Martinho, 1 ♀, 9.v.1980 (E. M. G.) ; Queimadas, 2 ♀♀, 11.viii. 1982 (E. M. G.). I believe that the above specimens belong to this widely distributed species.

A. matricariae Haliday

Curral dos Romeiros, 1 ♀, 23.vii.1982, 1 ♀, 9.viii.1985 ; Queimadas, 1 ♂, 9.viii.1982, 1 ♀, 11.viii.1982 (E. M. G.) ; Machico, Rocha Alta, 1 ♀, 1.i.1973 ; Fajã da Nogueira, 1 ♀, 24.vii.1985. These specimens were compared with the type material of *matricariae*. Distributed from Algeria and Spain through Europe to Iraq.

A. ? ribis Haliday

Machico, 1 ♀, 8.i.1973 ; Curral dos Romeiros, 1 ♀, 23.vii.1982 ; near Terreiro da Luta, 1 ♀, 7.viii.1982 ; Queimadas, 1 ♀, 9.viii.1982.

Trioxys angelicae Haliday

Curral dos Romeiros, 1 ♀, 20.vii.1982. A widely distributed species

ranging from Canary Islands and North Africa through Europe to central Asia. It has many aphid hosts.

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