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TWO NEW SPECIES OF TETRASTICHUS HALIDAY (HYMENOPTERA, CHALCIDOIDEA, EULOPHIDAE) FROM MADEIRA.

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With 3 figures

For some years I have been interested in the insect group of Hymenoptera Parasitica, particularly the Chalcidoidea, of Madeira. These were first collected during the last century by Vernon T. Wollaston, his material being described in part by him but mostly by Francis Walker. During the winter of 1972-73 I was able to collect some further material in the course of a fortnight's stay on the island and have summarised the results, as well as the records published by previous workers, in three papers (Graham, 1975, 1976, 1979).

As undoubtedly much still remains to be discovered regarding the Madeiran fauna of this group, I decided to make a second visit during my year of sabbatical leave in 1980. My wife and I spent three weeks in Funchal, from 6th to 27th May and collected Hymenoptera Parasitica in the vicinity of the city as well as in several localities farther from the capital. The weather at low altitudes was generally good, though in the mountains persistent cloud often impeded collecting. The number of specimens obtained was not very large, but of considerable interest. The material will help to clarify some of the earlier-described species, which are mostly represented in Walker's collection by single or few specimens, not always in the best condition. It is hoped to publish a full report on this material later but some time is needed for its study. Some species new to science were obtained and two are described in the present paper.

* Hope Collections, University Museum, Oxford, England.

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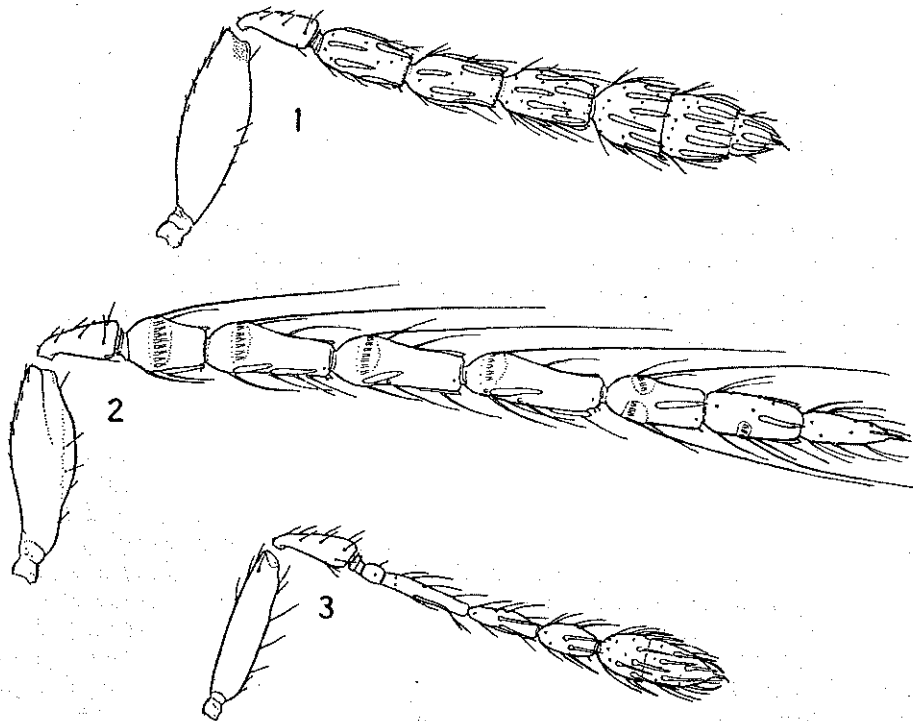
DESCRIPTIONS OF NEW SPECIES

Tetrastichus asperulus sp. n.

♀. Black, non-metallic; mouth edge usually narrowly reddish; dorsellum and upper angle of mesopleuron yellow. Antennal flagellum fuscous. Trochanters partly yellow; tips of fore femora broadly, of mid and hind femora narrowly, yellowish; tibiae yellowish-testaceous, hind ones sometimes infuscate medially; fore tarsi brownish with fourth segment fuscous, mid and hind tarsi yellowish with fourth segment fuscous. Tegulae testaceous anteriorly or mainly. Wings hyaline, venation yellowish-testaceous. Length 1.9 - 2.45 mm.

Head hardly broader than mesoscutum, about 2.5 times as broad as long; temples extremely short; POL 1.1 - 1.3 OOL, lateral ocelli separated by nearly twice their diameter from eyes. Head (front view) subtrapeziform, distinctly broader than high, vertex gently arched, genae, slightly curved. Eyes 1.3 times as long as broad, separated by about 1.3 times their length, virtually bare. Malar space about 0.6 length of eye, sulcus virtually straight. Mouth opening 1.3 - 1.35 malar space. Antenna (fig. 1): scape hardly 3 times as long as broad, tending to be broadest slightly above the middle, about 0.85 length of eye, hardly reaching median ocellus; combined length of pedicellus and flagellum about 1.2 breadth of mesoscutum; pedicellus slightly shorter than first funicular segment, in dorsal view 2.2 times as long as broad; funicle proximally distinctly stouter than pedicellus, hardly thickening distad, its segments subequal in length or hardly decreasing, the first 1.9 - 2.0, second 1.8 - 1.9, third 1.55 - 1.7 times, as long as broad; clava somewhat broader than the funicle, including terminal spine 2.5 - 3 times as long as broad, nearly or quite as long as funicles 2 plus 3, its first segment about as long as broad and occupying somewhat less than half the total length, second and third progressively slightly shorter and a little broader than long; terminal spine about 0.25 length of third segment, rather slender, apical hair as long as the spine; sensilla moderately numerous and in two partly overlapping rows on each funicular segment, more numerous but in one irregular row on each claval segment; hairs on basal part of each flagellar segment short and straight, those on distal part longer and curved.

Thorax 1.5 - 1.6 times as long as broad, moderately arched dorsally with propodeum sloping at 45° to 50° . Pronotum 0.2 length of mesoscutum, rather dull, with very fine slightly raised reticulation, with 6 - 7 pairs of moderately long bristles near hind edge. Mid lobe of mesoscutum very slightly longer than broad, moderately convex, dull,



Figs. 1-3, right antennae: 1, *Tetrastichus asperulus* sp. n., ♀; 2, *Tetrastichus asperulus* sp. n., ♂; 3, *Tetrastichus viatorum* sp. n., ♀.

with moderately fine, slightly raised reticulation whose areoles are mostly only a little longer than broad (a few up to twice as long as broad); median line distinct; adnotaular bristles short and weak, not easy to see, rather irregularly arranged but tending to form an outer row of 6 - 7 on each side, plus a second row of 3 - 5 and, in one specimen, a single bristle representing a third row. Scutellum slightly more than half as long as mesoscutum, 1.2 - 1.3 times as broad as long, moderately convex in longitudinal axis but strongly so in transverse axis, relatively dull, reticulation like that of mesoscutum but finer with most areoles about twice as long as broad; submedian lines distinct, about twice as far from each other as from sublateral lines, enclosing a space slightly

less than twice as long as broad; bristles equal in length, which is slightly less than distance between submedian lines, anterior pair in the middle. Dorsellum transversely oval, nearly 4 times as broad as long, only slightly shiny, with extremely fine isodiametric reticulation. Propodeum deeply, and moderately broadly, emarginate above the petiole, medially much shorter than dorsellum; slightly shiny, with very fine, very slightly raised reticulation; median carina slightly raised, as broad as long, its basal half occupied by a semicircular fovea which is broader than long; callus with 3-4 bristles. Legs of medium length, rather stout; hind coxa about 1.5 times as long as broad, hind edge strongly curved, surface moderately shiny, with very fine, slightly raised reticulation; hind femur 3 times as long as broad or slightly more; spur of mid tibia about 0.8 length of first tarsal segment, fourth segment of mid tarsi much shorter than first, but fourth of hind tarsi larger, nearly as long as first. Forewing about 2.3 times as long as broad, hardly or only just reaching tip of gaster, apical margin evenly rounded; costal cell much shorter than marginal vein, about 9 times as long as broad, upper surface bare, lower with a row of hairs placed on the submarginal vein and extending about half length of cell, followed by a gap, then a row of 3-6 hairs near submarginal vein in distal quarter of cell; submarginal vein with 3-4 dorsal bristles; marginal vein somewhat thickened towards base, 4.2-4.5 times as long as stigmal vein, its front edge with 12-16 bristles; stigmal vein at angle of ca. 50° with costa, thin proximally but expanding gradually to form a narrowly rhomboidal stigma having a short uncus; postmarginal vein absent; longest fringe about 0.2 length of stigmal vein; speculum wholly or partly open below (basal vein often with 1 or 2 hairs) produced as a narrow wedge below marginal vein nearly to level of stigmal; disc rather sparsely pilose, more thickly distad; subcubital line of hairs ends somewhat distad of distal edge of speculum. Hindwing obtuse, fringe ca. 0.16 breadth of wing.

Gaster lanceolate, about 3.5 times as long as broad, nearly 1.5 times as long as head plus thorax but slightly narrower than thorax, strongly acute and slightly acuminate; last tergite 1.3-1.8 times as long as its basal breadth, longest bristle of each cercus twice length of next longest, kinked in middle; ovipositor sheaths projecting by 0.36-0.6 length of last tergite; tip of hypopygium at about half length of gaster.

♂. Differs from ♀ as follows:

Antenna (fig. 2): scape nearly as long as eye, 2.7-2.9 times as long as broad, broadest in upper half, carina of anterior margin mainly in upper half and occupying about half length of scape; combined length of pedicellus and flagellum nearly twice breadth of mesoscutum; pedicellus about as long as first funicular segment, 2.2-2.25 times as long

as broad; funicle proximally distinctly stouter than pedicellus, tending to taper very slightly distad, the first segment shorter than the others and 1.25-1.6 times as long as broad, following segments subequal in length, second 2.1-2.2, third 2.3-2.7, fourth 2.5-3 times, as long as broad; clava hardly as broad as fourth funicular segment, including spine 5-5.5 times as long as broad, its segments subequal in length, each about twice as long as broad; each funicular segment with an externo-dorsal whorl of long dark bristles which reach beyond the tip of the segment following that which bears them, first segment of clava with two partial whorls, dorsal and ventral, second segment with one ventral partial whorl; sensilla sparse. Propodeum medially fully one third length of scutellum, longer than dorsellum; basal fovea of median carina triangular. Gaster oblong, about as long as but narrower than thorax, with ventral plica.

Belongs to species-group of *lycidas* Walker and much resembles *diplosidis* (Crawford) which differs as follows:

Average size less; antennae and legs slightly paler; antenna of ♀ with combined length of pedicellus and flagellum approximately equal to breadth of mesoscutum, funicular segments decreasing rapidly in length, third not or hardly longer than broad; mesoscutum slightly more shiny, with extremely fine, superficial or lightly engraved reticulation whose areoles are mostly 3-4 times as long as broad; scutellum more shiny, its submedian lines less far apart; propodeum shorter, its median carina not distinctly indicated, without a basal fovea, callus with only 2 bristles; hind coxae longer; forewing speculum closed below, disc moderately thickly pilose; gaster fully twice as long as head plus thorax, more acuminate, ovipositor sheaths farther exerted, tip of hypopygium situated at or hardly beyond one third length of gaster.

Holotype ♀ in Hope Collections, University Museum, Oxford; paratypes, ♂ and ♀, in the author's collection.

Madeira: São Martinho, Pico das Arrudas, 250 m., on grassy slopes dominated by *Hyparrhenia hirta* (L.) Stapf (Gramineae) with various herbs and shrubs: 1 ♀ 8.V.1980, 1 ♀ 9.V.1980, 1 ♂ 6 ♀ 21.V.1980, 1 ♂ 11 ♀ 26.V.1980 (N. M. and M. W. R. de V. Graham).

Tetrastichus viatorum sp. n.

♀. Belongs to the species-group of *crino* (Walker, 1838), but differs most obviously from that species, as well as from all the other known species of the group, in having only three anelli in the antenna with the third quadrate or even slightly longer than broad.

Head yellowish-testaceous with ocellar triangle and a transverse blotch on upper part of occipital surface fuscous, sometimes the frons

medially and a median spot below the antennal toruli also fuscous; thorax and gaster fuscous with weak bronze tinge, prepectus, and sometimes base of gaster, testaceous. Antennae brownish with scape more or less, pedicellus over about distal half, testaceous. Legs testaceous with hind coxa mainly, mid coxae sometimes partly, distal third or more of fore tibia, tip of mid tibia, fore tarsi and tips of mid and hind tarsi, fuscous. Wings yellowish, venation yellowish-testaceous. Length 1.3 - 1.4 mm.

Frons with median quadrangular area. POL about equal to OOL. Eyes moderately thickly clothed with rather long hairs. Antenna (fig. 3) characteristic: scape 4 - 4.3 times as long as broad, virtually as long as an eye, reaching to or very slightly above vertex; combined length of pedicellus and flagellum 1.7 - 1.8 breadth of mesoscutum; three anelli, the first two transverse, third as long as or slightly longer than broad, its length slightly greater than combined length of the other anelli; pedicellus about 2.8 times as long as broad, slightly shorter than first funicular segment; funicle proximally much less stout than pedicellus, but thickening distad, its segments decreasing rapidly in length, the first 5.2 - 6, second 2.5 - 2.7, third 1.5 - 2 times, as long as broad; clava distinctly broader than third funicular segment, including terminal spine 2.5 - 2.9 times as long as broad, as long as or slightly longer than combined length of funicular segments 2 and 3; sensilla sparse on first funicular segment, progressively more numerous on funicular segments 2 and 3 and the clava, very slender, those on segment 3 of the funicle and on the clava somewhat outstanding, their length about two thirds that of the segments; hairs of flagellum somewhat outstanding, curved.

Mid lobe of mesoscutum with 2 or 3 adnotaular bristles on each side. Propodeal callus with 2 bristles. Forewing 2.8 - 3.5 times as long as broad, reaching slightly beyond tip of gaster; submarginal vein with 2 dorsal bristles; marginal vein 3.9 - 4.5 times as long as stigmal vein, latter at angle of 35° - 40° to costa; longest fringe at least two thirds length of stigmal vein.

Gaster ovate, as long as or hardly longer than head plus thorax, 1.8 - 2.2 times as long as broad, acute.

♂. Unknown.

Holotype ♀ in Hope Collections, University Museum, Oxford. Paratype ♀ ♀ in the author's collection.

Madeira: Curral dos Romeiros, in a forest dell with luxuriant grass carpet, beneath oaks (*Quercus robur* L.), 2 ♀ ♀ (holotype and paratype) 13.V.1980 (M. W. R. de V. Graham), 15.V.1980, 1 ♀ (paratype) (N. M. Graham).

REFERENCES

- Crawford, J. C. :
1907. New North American Hymenoptera. *J. N. Y. ent. Soc.*, 15: 177-188.
- Graham, M. W. R. de V. :
1975. Some Chalcidoidea (Hymenoptera) from Madeira, including a new genus and two new species. *Entomologist's Gaz.*, 26: 47-58.
1976. Notes on the type-material of some European *Elasmus* (Hymenoptera: Chalcidoidea) and description of a new species from Madeira. *Bull. Mus. natn. Hist. nat. Paris*, (3) 362 Zoologie 255: 293-301.
1979. The Chalcidoidea (Hymenoptera) of Madeira: a preliminary list. *Entomologist's Gaz.*, 30: 271-287.
- Walker, F. :
1838. Descriptions of British Chalcidites. *Ann. Mag. nat. Hist.*, 1 (5): 381-387.