

Descriptive and taxonomic notes on ten, mainly new, species of West Palaearctic Eulophidae (Hymenoptera)

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The following species are described as new:

Elachertus pilosiscuta, sp. n., from Czechoslovakia and the European U.S.S.R.,

Elachertus longipetiolus, sp. n., from France and Czechoslovakia,

Ardalus azerbaijanicus, sp. n., from the Azerbaidzhan S.S.R.,

Cirrospilus caspicus, sp. n., from the eastern slopes of the Caucasus.

Ratzeburgiola incompleta, sp. n., from Czechoslovakia, Italy, the Moldavian S.S.R. and the Azerbaidzhan S.S.R.,

Teleopterius delucchii, sp. n., from Britain, Poland, the Moldavian S.S.R., Italy and Yugoslavia,

Holcopelte stelteri, sp. n., from Germany, and

Tetrastichus postmarginalis, sp. n., from Czechoslovakia, Austria and Yugoslavia.

Sympiesis punctifrons (Thomson) is resuscitated as a good species and compared with *S. acalle* (Walker). The genus *Chrysocharidia* Erdős is synonymized with *Achrysocharis* Girault and *Achr. fimbriata* (Erdős), comb. n., partly redescribed in both sexes.

Holotypes of the new species, as well as most paratypes, are deposited in the Entomology Department of the National Museum in Praha.

Elachertus pilosiscuta, sp. n.

Female. — Body black with a slight greenish tint on the vertex; abdomen often brownish, at least anteriorly; antennae blackish-brown, with scapes dark testaceous; legs including coxae dark testaceous, sometimes slightly infuscate. Pubescence of body brownish, on the propodeum paler, almost whitish. Wings very slightly infuscate, but without any distinct cloud.

Head slightly wider than thorax, 29 : 26, in dorsal view 2.1 to 2.2 times as wide as long, with temples strongly receding, nearly absent. Head in anterior view fully 1.4 times as wide as high, with mouth margin straight. Relative measures: width of head 29, its height 20.5, width of frons 17, height of eye 14, its shortest diameter 11, malar space 4.5, width of mouth (from corner to corner) 9.5, POL : OOL as 6.5 : 4. Vertex and frons relatively densely hairy, lower face in the middle and on sides with scattered hairs. Vertex

behind ocelli with a vaguely indicated fold, without carina. Antennal scapus not reaching the anterior ocellus, slightly spindle-shaped, slightly longer than pedicellus and ring segment and the first funicle segment combined. First funicle segment twice as long as pedicellus, about 2.5 times as long as broad; the following segments shorter, the fourth subquadrate, half as long as clava. Flagellum hardly clavate, distinctly pubescent with obliquely distant hairs; sensilla linearia sparse.

Thorax about 1.9 times as long as broad, with pronotum of medium size, in normal position about two-fifths as long as mesoscutum, fairly densely hairy, with six long bristles (submedian, sublateral and lateral ones) on caudal margin. Surface with leathery sculpture which is at hind margin obliterate. Mesoscutum (fig. 1) on lateral lobes and anterior half on the mid lobe fairly densely covered with brownish bristles of the same kind as the hairs on the pronotum; interspaces between these bristles about equal to one-third the bristle length. Posterior adnotaular bristles very long and strong, but no other bristles differentiated from the shorter bristles on the disc. Sculpture of mid lobe anteriorly transversely leathery, posteriorly engraved-reticulate. Hind margin of mid lobe considerably shifted backwards. Axillae bare, very finely alutaceous on upper part. Scutellum smooth or nearly so (an alutaceous reticulation sometimes vaguely indicated), the discal part delimited by the sublateral grooves almost twice as long as wide (15 : 8). Metanotal dorsellum smooth, large. Propodeum at meson fully twice as long as the dorsellum, smooth, median carina finely forked anteriorly, but everywhere very low, weak. Callus with numerous long bristles. Forewing extensively pilose, speculum nearly wanting, basal cell and a narrow strip along hind margin of wing blade basally, bare. Pubescence of medium length, shorter than in *E. inunctus* Nees. Relative measures: costal cell length 28, marginal vein 28, postmarginal vein about 18, stigmal vein 12. Angle of stigmal vein about 30°.

Abdominal petiole small, transversely conical, smooth, usually almost hidden. Gaster long-oval, 2.1—2.5 times as long as broad, hardly longer than the thorax, sparsely pubescent posteriorly and on sides. Hind margin of first postpetiolar tergum distinctly produced in the middle.

Length: 2.0—2.7 mm. (holotype 2.6 mm.).

Male. — Similar to female except for antennae, abdomen (which has an elongate paler brown spot subbasally) and the usually darker legs. Whole of antenna (fig. 2) blackish-brown. Scapus nearly reaching ocellus, compressed from sides, enlarged, parallel-sided, 2.5 times as long as broad in side view; pedicellus subglobular (seen from above); funicle compressed, densely pilose, hairs pale brown and about as long as maximum width of segments; funicle segments asymmetrical, the terminal peduncles subquadrate or hardly longer than wide, narrow, situated at lower margin of the segments; body of first segment in side view subtriangular-elongate, narrowed basally, fully twice as long as wide at apex; the second to fourth segments subequal, subquadrate; clava twice as long as wide, with a small spine at apex. Length 1.5—2.0 mm.

Biology: Not known; the species probably is associated with marshy habitats in forests or on their edges and in spring it appears very early, on *Salix* catkins, in both sexes.

Distribution: Czechoslovakia, European U.S.S.R.

Holotype (♀): Czechoslovakia, on marshy vegetation at the lake Velké Dářko at the frontier between Bohemia and Moravia, 1. VI. 1956 (Bouček leg.). Cat. no. 26.200.

Further material (12 ♀♀ and 18 ♂♂, paratypes incl. allotype): Czechoslovakia: Bohemia, Mts. Krušné hory, Moldava, 1. VI. 1957 (Bouček); Mt. Jedlová S. of Rumburk, 30. IV. 1957 (Bouček); Markvarec nr. Louny, 6. VII. 1957 (Bouček); Praha-Hlubočepy, 17. IX. 1925 and 8.—12. IV. 1926 (Novicky); Vrané nad Vltavou S. of Praha, 26. IV. 193? (Obenberger); Vřeštov NW. of Hradec Králové, VI. 1955 (Bouček); Nový Hradec králové, lake Cikán, 22. VII. 1955 (Bouček); Týniště nad Orlicí, at ponds in forest, 23. VII. 1955 (Bouček); lake Velké Dářko NE. of Příbrav, 1. VI. 1956, allotype and paratypes with holotype (Bouček); Kubova Huť, Šumava Mts., 28. VIII. 1962 (Bouček); Slovakia: Vysoké Tatry Mts., Starý Smokovec, 21. VIII. 1958 (Bouček). — European U. S. S. R.: Oranienbaum nr. Leningrad, 15. IX. 1963 (Bouček).

In the key to the British species of *Elachertus* Spinola by Graham, 1959, the new species runs to couplet 5(8) and within it, eventually, to *E. (florianus) Walker* = *inunctus* Nees, except for the presence of numerous bristles on the mesoscutum. Especially on this character I critically examined all the rich material of this species-group being at my disposal and have come to the conclusion that there are two distinct species involved. Another closely related species is *E. isadas* (Walker) in which the chaetotaxy of the mesoscutum is very similar to that of *E. pilosiscuta*, but in *E. isadas* the mid lobe of mesoscutum is not unusually produced backwards and the body has a bright green tint. *E. pilosiscuta* and *E. inunctus* may by distinguished by the following summary of characters:

- 1 (2) Mid lobe of mesoscutum with three pairs of long bristles and with at most 1—3 pairs of additional weaker and shorter bristles on the disc; pubescence of compound eyes less dense, distance between hairs equals about to two facets of eye; lower margin of clypeus slightly produced *E. inunctus* Nees
- 2 (1) Mid lobe of mesoscutum anteriorly covered with numerous short bristles (fig. 1), the paired strong and long bristles developed only in hind corners near axillae; eyes very densely hairy; clypeal margin not produced, in anterior view in one line with the mouth margin *E. pilosiscuta*, sp. n.

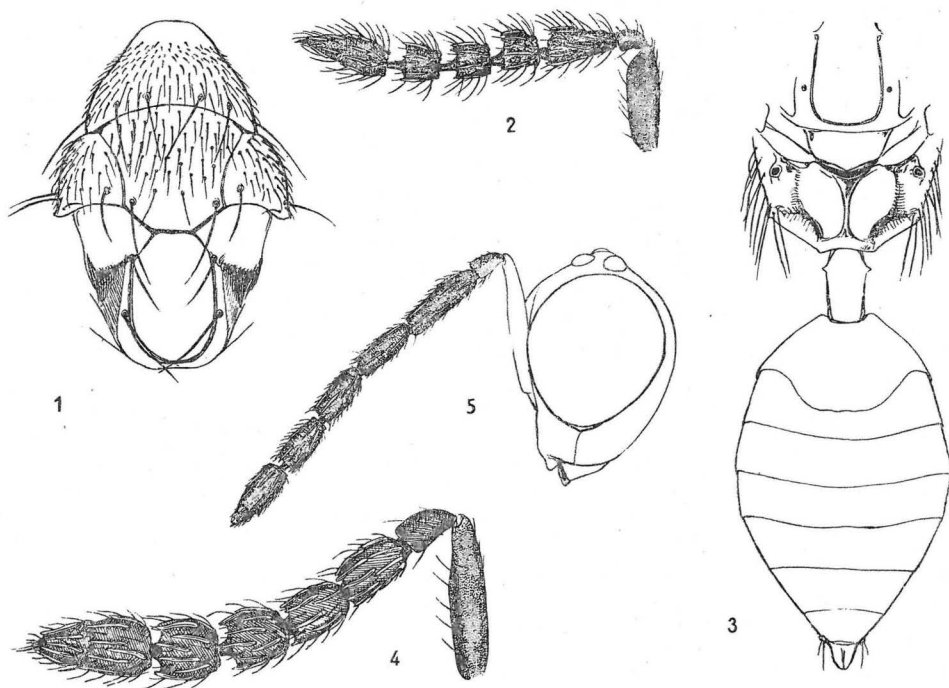
Elachertus longipetiolus, sp. n.

Female. — Body black with a dark metallic green tint on pronotum and mesoscutum and more greenish on vertex; abdomen with a subbasal pale spot; antennae black, scapes testaceous; legs testaceous except hind coxae which are concolorous with the body. Pubescence of body whitish. Wings subhyaline.

Head slightly wider than the mesoscutum (25.5 : 23), in dorsal view twice as wide as long, in anterior view fully 1.3 times as broad as high. Relative measures: height of head 19, width of frons 15.5, height of eye 12.5, its shortest diameter 10, malar space 5, width of mouth 10; POL : OOL as 5.5 : 3.5. Clypeal margin slightly produced; tentorial pits situated hardly one-third the distance from mouth border to margin of antennal sockets. Head extensively pilose, eyes moderately densely pubescent. Vertex behind ocelli slightly folded, but without carina. Antennal scapus ending in one ocellus diameter distance before ocellus; pedicellus 1.4 times as long as wide from above; flagellum weakly pilose, with sparse sensilla linearia; first funicle segment 1.8 times as long as

wide, the second to fourth subequal, each slightly or hardly longer than wide; clava twice as long as broad, ovate-acuminate.

Thorax almost twice as long as wide. Pronotum much narrower than mesoscutum (15.5 : 23), dorsally about as long as the mesoscutum, densely hairy; the caudal submedian, sublateral and lateral bristles only slightly more than twice as long as the ordinary bristles. Sculpture irregularly and densely leathery, on caudal margin obliterate. Mesoscutum on side lobes and the anterior half of mid lobe with the same sculpture and bristles as pronotum above; bristles of mid lobe on disc tending to be longer, in the centre there are two submedian bristles which are about twice as long as the other bristles anterior to them; the paired posterior adnotaular bristles still stronger and longer. Hind half of mid lobe engraved-reticulate. Scuto-scutellar suture almost straight. Axillae anteriorly very finely and densely alutaceous. Scutellar disc distinctly engraved-reticulate, the part between sublateral grooves widest posteriorly, on the whole nearly twice as long as broad (15 : 8). Metanotum and propodeum smooth, dorsellum posteriorly distinctly angularly produced (fig. 3). Median carina of propodeum very conspicuous though not high, not forked, anterior margin of the sclerite in the middle slightly elevated, forming



Figs. 1-2. *Elachertus pilosiscuta*, sp. n.: 1, pronotum and mesonotum with characteristic pilosity (female); 2, male antenna. — Figs. 3-4. *Elachertus longipetiolus*, sp. n.: 3, part of thorax and abdomen in female; 4, male antenna. — Fig. 5. *Ardalus azerbaijanicus*, sp. n., female antenna with head in side view.

a distinct slot between the margin and the dorsellum. In the middle propodeum hardly longer than width of scutellar disc posteriorly. Lateral callus with 8—11 long bristles, mainly in one row. Thorax pleurae except for depressions smooth, bare. Forewing pubescence very short, basal cell bare, also speculum distinct beyond basal hair-line and the parastigma. Relative measures: costal cell 25, marginal vein 23, postmarginal vein about 12, stigmal vein 8. Angle of stigmal vein about 40°.

Abdominal petiole (fig. 3) reaching to apex of hind coxae, at least two-thirds as long as propodeum, its body behind the basal constriction 1.8 to twice as long as wide, its sides subparallel; dorsal surface extremely finely transversely rugulose-granulate. Gaster (less petiole) obovate to ovate, about as long as thorax, almost twice as long as broad.

Length: 1.8—2.3 mm. (holotype 2.3 mm.).

Male. — Similar to female, but the metallic tint weaker, femora infuscate, abdomen with a paler and more limited spot, the petiole only 1.8 times as long as broad, with lateral spiracular tubercles more distinct. Antennal scapus blackish, very slightly enlarged, parallel-sided, four times as long as wide; flagellum (fig. 4) very weakly pubescent, hairs nearly adpressed, not longer than half the width of segments; tiny peduncles between segments very short; first funicle segment 1.6 times as long as wide, subcylindrical, the following ones subequal in size, subquadrate; clava twice as long as wide, ovate-acuminate; no distinct spine. Length: 1.4—1.8 mm.

Biology: Unknown. The species seems to be associated with trees or with forest habitats.

Distribution: Czechoslovakia, France.

Holotype (♀): Czechoslovakia, Bohemia, Brodec nr. Louny, 24. V. 1953 (Šedivý leg.). Cat. no. 26.201.

Further material (6 ♀♀ and 3 ♂♂, paratypes including allotype): **Czechoslovakia:** Bohemia, Bynovec nr. Děčín, 27. VIII. 1956 (Bouček); forests between Jevany and Habr SE. of Praha, 14. VI. 1953, allotype (Bouček, Kodys); Vřeštov NW. of Hradec Králové, VIII. 1953 (Bouček); Piletice nr. Hradec Králové, 19. VII. 1955 (Bouček); Starkoč nr. Náchod, VII. 1955 (Macek); Vrchoviny S. of Náchod, 1. VI. 1935 (Macek). — **France:** Dep. Var, Agay, V. 1927 (Obenberger).

The *argissa-artaeus* species-group of *Elachertus* Spin., to which this species belongs, was known for long as *E. petiolatus* Thoms., until Graham, 1959, showed that there had been two species confused. Now another species has been recognized and may be distinguished from the other two species as follows:

- 1 Thorax usually bright green to bronze; legs (almost always including the coxae), an extensive blotch at base of gaster dorsally, and more or less gaster ventrally, bright to reddish testaceous; female gaster shorter, hardly longer than broad; male antennae usually testaceous, scapus slightly expanded subapically, funicle segments subquadrate, weakly pilose, the hairs half as long as the segments wide *E. artaeus* (Walker)
- Thorax usually darker, more weakly metallic; legs paler testaceous; gaster of female 1.6—2 times as long as broad, black or with a small subbasal spot and venter at most along the median line, pale; scapus in male usually dark-coloured and not distinctly enlarged subapically 2

- 2 Abdominal petiole twice as long as wide or nearly so (fig. 3); flagellum in male weakly pubescent, the hairs hardly half as long as width of segments, funicle segments 2 to 4 hardly petiolate *E. longipetiolus*, sp. n.
- Petiole at most 1.3 times as long as broad; flagellum in male densely pubescent with the hairs as long as width of segments which are sometimes slightly elongate and always more clearly petiolate *E. argissa* (Walker)

***Ardalus azerbaijanicus*, sp. n.**

Female. — In colour, size and general form of body similar to *Ela-chertus inunctus* Nees.

Body black, with a slight greenish tint on pronotum and mesoscutum and a brighter green lustre on vertex; abdomen subbasally reddish-brown translucent; antennae blackish, scapes and pedicels pale testaceous, pedicels above slightly darker; legs including coxae pale testaceous, only claws brown. Wings hyaline. Pubescence of body whitish.

Head slightly wider than mesoscutum (32 : 29), in dorsal view transverse as 32 : 15.5, with occiput fairly deeply excavated; vertex carinaceous behind ocelli; temples almost absent, strongly receding. POL : OOL as 6 : 3; ocelli large, the greatest diameter equals OOL. Head in anterior view subtrapezoidal-oval, transverse as 32 : 23.5; frons as wide (16.5) as height of eye which is short-oval (16.5 : 14), fairly densely hairy. Further relative measures: malar space 5, width of mouth 12, width of the narrow clypeus 7, its lower margin broadly and very slightly produced. Vertex and frons moderately pilose, lower face with scattered hairs. Shallow scrobes ending two-thirds of ocellus diameter before ocellus, but scapus (its relative length 14) reaches the ocellus level (fig. 5). Flagellum plus pedicellus 1.25 times as long as width of head; it is filiform, but slightly stouter than the pedicellus; the latter dorsally 1.5 times as long as wide. One narrow ring segment recognizable. Funicle segments clearly separate, elongate, the first three times as long as wide and more than twice as long as pedicellus; the second 2.3 times, the fourth 1.7 times, as long as broad; clava 2.5 times as long as wide, long-oval, without distinct apical spine. Flagellum with short pubescence and coarse, sparse sensilla linearia.

Thorax 1.8 times as long as broad, not depressed. Pronotum pilose, engraved-reticulate, hind margin almost smooth and its six bristles slightly removed from margin. Mesoscutum engraved-reticulate, the meshes posteriorly very irregular and rather wide; side lobes densely pilose, the mid lobe with anterior paired bristles and the posterior adnotaular paired bristles strong, on the disc with two additional pairs of weaker bristles. Notauli shallow, linear, but carinaceously bordered on inner side; their ends intercepting inner corners of axillae. Scutellum almost smooth, with some alutaceous sculpture vaguely indicated anteriorly; sublateral grooves deep, posteriorly not completely joined; discal part between them fully 1.6 times as long as broad. Metanotal dorsellum short, about 4 times as wide as long, about a quarter as long as the propodeum which is only two-thirds as long as the scutellum. Propodeum with strong median carina accompanied with several small diverging rugae; cup of median

carina distinct; the groove-like foveae in place of plicae deep, without cross-crenulae, shallower mesad from spiracle; the latter almost round. Callus with dense bristles; posterolateral corner of propodeum behind callus forming a rounded vertical lamina jutting above hind coxa, beyond metapleura; supra-coxal flange narrow; nuchal strip delimited, not broad. Thoracic pleurae similar to those of *Elachertus inunctus*, but metapleura broader posteriorly, the impressions on mesopleura shallower. Forewing: basal cell only with a few hairs below subcostal vein; speculum of medium size. Relative measures: costal cell 31, marginal vein 27, postmarginal vein 12, stigmal vein 8.5. Angle of stigmal vein about 35°. Hind legs not very slender, hind tibia densely pilose; all tarsi slender and tapering to apex; hind basitarsus subequal in length to the second segment.

Abdomen broadly lanceolate, slightly longer than thorax, about 2.6 times as long as wide. Petiole transverse, subconical, but with conspicuous lateral auricles. First postpetiolar tergum sublaterally (on either side) inflated, covering about two-fifths of gaster; its hind margin straight. Hypogynium (last sternite) very long, reaching the level with base of epipygium. One of the cercal bristles twice as long as others, curved.

Length: 2.8 mm.

Male. — Unknown.

Biology: Not known; the specimen taken by sweeping the edge of a deciduous forest on the shore of the Caspian Sea.

Distribution: Eastern Caucasus in U.S.S.R.

Holotype (♀): Northern Azerbaidzhan S.S.R., Nabranj, 12. VII. 1967 (Bouček leg.). Cat. no. 26.202.

The genus *Ardalus* Howard, 1896, is known so far only in North, Central and South America, and in some Pacific islands, in a few species. It is closely related to *Elachertus* Spinola in the sense of the European authors. The characters used for separation of the two genera in the past, such as the presence of one spur or of two spurs on hind tibiae, etc., have not proved reliable and some other characters obviously are only of idiocyncratic character. For the time being I am trying to retain the generic status of *Ardalus* How., but only on the following characters in which it should differ from *Elachertus* Spin.:

Inner margin of weak notaular grooves carinaceous, at least posteriorly; median carina of propodeum anteriorly elevated, broadly cleft and forming with the elevated anterior margin of propodeum a cup-like structure; deep furrow on either side of propodeal apex runs sinuately to the inner side of the spiracle and often is divided by several cross-crenulae.

These characters are based on some species, including the type-species of *Ardalus*, *A. aciculatus* How., which I studied at the British Museum in London, and the North American *A. insuetus* (Gahan). In the latter species, however, the cup-like structure is only very weakly developed, not much different from some *Elachertus* species.

Cirrospilus caspicus, sp. n.

Female. — Head and thorax testaceous, abdomen usually darker brown, sometimes with distinct darker cross-fasciae on hinder halves of tergites; also occiput with a broad fuscous macula on either side of foramen magnum and sometimes stemmaticum of vertex infuscate; following parts usually lemon-yellow: orbits, genae, lower face, hind margin of pronotum and metanotal dorsellum. Antennae slightly darker-testaceous, also bottom of thoracic furrows dark-coloured; propodeum slightly infuscate; anterior part of mid lobe of mesoscutum, upper part of axillae, and disc of scutellum sometimes darker testaceous. Pubescence of body whitish. Forewing with broad brownish cloud on disc (indistinct only in the Daghestan paratype).

Head (usually collapsing in dry specimens) with short receding temples; eyes bare, large, short-oval as about 9 : 7.7; relative length of malar space 4.5, width of mouth 6.5; mandible with three teeth, the two lower ones sharp. Surface of face rather dull, finely granulate-rugulose; pubescence very short, sparse. Scrobes not deep (if not shrunken in), connected with the anterior ocellus by a vertical linear depression. Antennae (fig. 7) inserted at lower ocular line. Scapus not reaching ocellus, slightly longer than clava. Flagellum plus pedicellus hardly longer than width of frons with one eye (in facial view). Pedicellus dorsally twice as long as broad; at least one ring segment recognizable; both funicle segments only slightly oblong, with some subdecumbent weak hairs and sparse sensilla linearia; clava clearly three-segmented, almost spindle-shaped, 1.3 times as long as funicle; terminal spine very short.

Thorax squat, hardly 1.2 times as long as broad, weakly pilose, also the ordinary bristles rather short. Pronotum short, on caudal margin with about 8 longer bristles. Mesoscutum and scutellum subequal in length, dull, raised-reticulate. Mid lobe of mesoscutum 1.4 times as long as wide posteriorly, with one posterior adnotaular bristle on either side and, in front of them, with 3—5 scattered short hairs on either half. Axillae only slightly shifted forwards. Scutellum round, slightly transverse (about as 10 : 9), moderately convex; submedian grooves hardly indicated; anterior pair of bristles about in the middle. Dorsellum convex, about 4 times as wide as long at meson. Propodeum short, hardly 1.5 times as long as the dorsellum, convex, surface of submedian panels with vague reticulation, not much shiny; median carina distinct, narrow; spiracle almost round, freely exposed, removed by slightly more than its diameter from metanotal margin; space between this margin and spiracle slightly depressed. Callus with 7—8 hairs, generally in one row. Mesopleura anteriorly with about 10 hairs in one irregular row. Furrow between mesepimeron and episternum slightly sinuate. Forewing (fig. 8) exceeding apex of abdomen; discal hairs not very dense; marginal ciliae of medium length; bristles on anterior edge of marginal vein black, distally about twice as long as width of vein; basal cell bare, open beneath; speculum closed, narrow, extending to middle of marginal vein; lower surface of blade below marginal vein with one row of 8—10 hairs; costal cell on lower surface with one hair-row; subcostal vein with 4—6 bristles. Relative measures: costal cell length 17, marginal vein 11, stigmal vein 4; postmarginal vein nearly as long as the

stigmal, the latter with a short uncus distinctly removed from apex. Hind wing narrowly rounded at apex.

Abdomen sessile, broader than thorax, ovate-acuminate, in length subequal to thorax plus head, sparsely pilose sublaterally, laterally and apically. Cercal ciliae not longer than ordinary hairs. Sheaths slightly protruding seen from above. Hypogynium ending before middle of gaster.

Length: 1.3—1.5 mm.

Male: Unknown.

Biology: Unknown. Collected by sweeping the sparse semi-desert vegetation, near Baku amongst planted young pines (which are a foreign element there).

Distribution: U.S.S.R., eastern slopes of the Caucasus.

Holotype (♀): Azerbaidzhan, Baku, hill above the TV sender, 8. VII. 1967 (Bouček leg.). Cat. no. 26.206.

Further material (5 ♀♀, paratypes): Azerbaidzhan, Baku, same place as holotype, 10. and 20. VII. 1967 (Bouček); Daghestan, Kraipovka, 8. VIII. 1958 (Vorobeev).

Within the genus *Cirrospilus* Westwood the new species belongs to subgenus *Atoposomoidea* Howard widely distributed in many species in the Palaearctic region. *C. caspicus* clearly differs from all known species by the following combination of characters: body squat, predominantly yellow, with broad discal infumation on forewings; bristles of thorax weak; submedian grooves of scutellum indistinct; forewing with cubital hair-line not sinuate, postmarginal vein short, basal cell open below. In some respects this species reminds one of the genus *Winnemana* Crawford, *Tetrastichinae*, the single holarctic species of which, *W. argei* Crawford, is blackish in colour and develops in the eggs of the species of *Arge* Leach (Hym., Argidae).

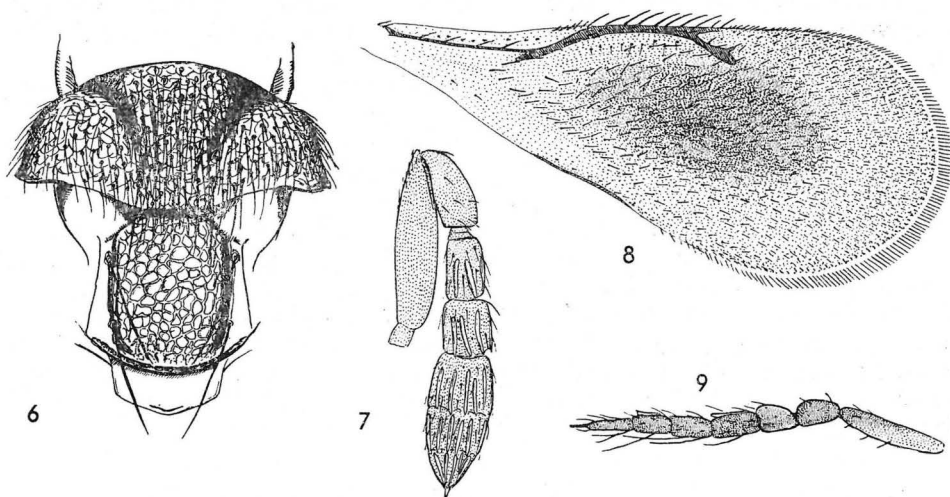


Fig. 6. *Ratzeburgiola incompleta*, sp. n., mesonotum and dorsellum in a big female (2.4 mm.). — Figs. 7–8. *Cirrospilus caspicus*, sp. n.: 7, female antenna; 8, female forewing. — Fig. 9, *Teleopterius delucchii*, sp. n., female antenna.

Ratzeburgiola incompleta, sp. n.

Female. — Head and thorax dark metallic green; abdomen for most part dark testaceous, with sides and tip blackish and with a faint metallic green tinge. Antennae blackish, ventral side of scapus and distal end of pedicellus narrowly, testaceous. Legs mainly testaceous, with the following parts metallic green: front and mid coxae, and a stripe anterodorsally on front and middle femora. Wings subhyaline.

Head transverse, from above as 30 : 13, temples short and strongly receding. Ocelli of medium size, POL : OOL as 7 : 4. Antennal scapus slightly exceeding vertex level; flagellum filiform, hardly broader than pedicellus seen from above. Pedicellus about 1.5 times as long as broad; first funicle segment three times, the fourth only 1.5 times, as long as broad; flagellum plus pedicellus about 1.4 times as long as width of head. Hairs on head sparse and weak.

Pronotum dorsally with rough reticulation, densely pilose. Mesoscutum (fig. 6) densely covered with whitish bristles; those on the mid lobe very long, slightly radiating caudad. The six long bristles on caudal margin of pronotum and the posterior paired bristles on mesoscutum [which are situated laterad from the notaular furrows in *Ratzeburgiola cristata* (Ratz.) and these furrows intercept the base of scutellum mesad from the inner corners of axillae!], dark, the four bristles on scutellum blackish. Ordinary mesoscutal bristles situated on tubercles, interspaces between them mainly smooth, only posteriorly on mid lobe transversely rugose. Scutellum: sublateral grooves deep, space between them coarsely punctured-reticulate, sides smooth as well as axillae. Metanotal dorsellum also smooth. Propodeum as in *R. cristata* or in *Pnigalio soemius* (Walker); median length equals length of transverse costula; callus densely covered with long white hairs. Metapleura bare. Mesepimeron and prepectus smooth. Forewing: basal cell covered with hairs, speculum wanting. Relative measures: costal cell 28, marginal vein 28, postmarginal vein 18, stigmal vein 8.

Abdomen oval, wider than thorax as 31 : 29, about 1.5 times as long as broad, subequal in length to thorax less pronotum. Petiole transverse, usually hidden. First postpetiolar tergum sublaterally extensively hairy, in the middle and posteriorly bare; the following terga only with sparse and very thin hairs.

Length: 1.5—2.4 mm. (holotype 2.4 mm.).

Male. — Similar to female in colour and sculpture, but scapus brownish black with only the very base and radicle testaceous; flagellum dark brown, three-branched, covered with long fine hairs; first branch fully three times as long as the scapus; the fourth (simple) funicle segment almost four times as long as wide, subequal in length to clava. Sculpture on disc of scutellum very obliterate, anteriorly wanting in the allotype, in the paratypes completely wanting owing to smaller body size. Legs usually slightly infusate, also abdomen darker than in female.

Length 1.3—1.7 mm.

Variation: In smaller specimens which I take as conspecific, the green lustre is brighter, the sculpture on thorax relatively less dense and the bristles less numerous. In all females of size more than 1.8 mm. the reticulation on the scutellum is very distinct, in a female of 1.6 mm. (from Kotovskoe) the indi-

vidual dots are very shallow and the smooth interspaces wide, while in all specimens of smaller size, including the males, the scutellar disc is smooth, usually without any sculpture.

Biology: Parasite of *Holocacista rivillei* Stainton (Lep., Heliozelidae) in Italy. In Central Europe bound to steppe habitat.

Distribution: Czechoslovakia, Italy, Moldavian S.S.R., Azerbaidzhan S.S.R.

Holotype (♀): Czechoslovakia, Slovakia, Turna nad Bodvou, 23. IV. 1952 (Bouček leg.). Cat. no. 26.203.

Further material (13 ♀♀ and 4 ♂♂, paratypes including allotype: Czechoslovakia: Slovakia, Štúrovo, 23. V. 1962 (Kocourek); Čajkov nr. Levice, 31. VII. 1960, allotype (Kocourek); Turna nad Bodvou, 23. IV. 1952 (Bouček). — Italy, Sicilia, Palermo, ex *Antispila rivillei* on Vitis, 16., 20. and 26. IX. 1942 (Mariani). — Moldavian S. S. R.: Kotovskoe, 29. VI. 1960 (Talitzki), 12. VII. 1961 (Bouček); Karmanovo, 22. VII. 1961 (Bouček). — Azerbaidzhan: Teng-alty nr. Guba, 13. VII. 1967 (Bouček); Divitchi, 17. VIII. 1961 (Rzajeva).

R. incompleta sp. n. is closely related and similar to the type-species of *Ratzeburgiola* Erdős, 1958, *R. cristata* (Ratzeburg), except for the notaular furrows which anteriorly are as deep as in the latter species, but vanish in *R. incompleta* at about two-thirds of the length of the mesoscutum.

Sympiesis punctifrons (Thomson), sp. bona!

Eulophus punctifrons Thomson, 1878, p. 231.

In 1959 I synonymized *E. punctifrons* Thoms. with *Sympiesis acalle* (Walker), because the only specimen of *punctifrons*, a syntype I could compare with the numerous specimens of the variable *S. acalle*, seemed to be only an aberrant female of the latter species. Recently Mr. J. P. Aeschlimann of Zurich, Switzerland, reared a nice lot of this "form" from *Zeiraphera diniana* Guenée (Lep., Tortricidae) and sent the specimens to me for identification. A closer study revealed that the difference between *S. acalle* and *S. punctifrons* is constant and there are two species involved, though closely related to each other. The following summary of characters may help to separate them:

- 1 (2) Antennal scapus always wholly metallic; frons at inner orbits with conspicuous piliferous punctures, the reticulate sculpture less dull, colour greenish; OOL about twice as long as longest diameter of ocellus; thorax mainly green, in profile less strongly arched, more elongate, 1.8—1.9 times as long as broad; sculpture on mesoscutum not much coarser than that of scutellum, generally finer than in *S. acalle*, but shinier; scutellum fully as long as broad, longitudinally only feebly convex; metanotum and propodeum longer, together as long as three-fourths of scutellum; propodeum punctured-reticulate, dull; forewing with proximal fascia decidedly weaker than the distal macula which usually is more sharply delimited and does not stretch on the posterior half of wing blade; hairs on ventral surface of costal cell distally in three, in smaller specimens in two rows; postmarginal vein about 2.5 times as long as the stigmal; associated with coniferous trees *S. punctifrons* (Thomson)
- 2 (1) Scapus beneath extensively testaceous; frons without conspicuous punctures, the reticulation deeper, finer, duller; colour mainly bluish; OOL usually less

than twice the diameter of ocellus; thorax mainly bluish-green or bluish, duller, only 1.5—1.6 times as long as broad, in profile strongly arched, shorter; sculpture on mesoscutum generally much coarser than on scutellum; scutellum slightly wider than long, convex; metanotum and propodeum shorter, together about two-thirds as long as the scutellum; propodeum shinier, its punctuation more superficial; forewing fasciae not much different in intensity; hairs on lower surface of costal cell in 1—2 rows distally; postmarginal vein twice as long as the stigmal; species associated with deciduous trees, mainly Rosaceae, probably also with some herbaceous plants *S. acalle* (Walker) ..

***Achrysocharis fimbriata* (Erdős), comb. n.**

Chrysocharidia fimbriata Erdős, 1956, p. 389.

The genus *Chrysocharidia* Erdős, 1956, was based on *C. fimbriata* Erdős, 1956, described from two female specimens found in Hungary, one of them allegedly reared from *Targionia vitis* Sign., a Diaspidid Coccid. In 1967 a rich material of parasites of *Stigmella malella* Stainton (Lep. Nepticulidae) was submitted to me for identification from Yugoslavia and among the parasites there were more than 50 specimens of a species which I subsequently recognized as the above species. In view of the new host record confirmed by the rearing of so many specimens the previous record must be regarded as doubtful.

In this species the antennal flagellum, more conspicuously so in the females, is slightly dilated and although this character reminds one much of *Closterocerus* Westw., in my view the species is best placed in *Achrysocharis* Girault. *Achrysocharis* and *Closterocerus* are two closely related genera and the only character to distinguish them are the slender antennae in one and the dilated, compressed antennae in the other. Both genera share the stigmal hair-line in the forewing, delimiting a bare area between the stigmal vein and the anterior wing margin, in which they both differ from two other close genera, *Achrysocharella* Girault and *Neochrysocharis* Kurdjumov.

Dr. Erdős attributed a generic significance to the long marginal wing ciliation in his species. But the rich material at my disposal displays a considerable variation. In the type the longest marginal ciliae are about one-third the width of the forewing blade. But this is an exception occurring only in the smallest specimens of both sexes, 0.5—0.7 mm. in length. In bigger specimens, as is also known in some other Eulophidae, the ciliae are relatively shorter, in specimens of 0.9—1.0 mm. in length they are only one-ninth or one-tenth the wing width. Because the males are of smaller size, 0.5 to 0.7 mm., their longest wing ciliae are relatively longer, but varying from one-half to one-seventh (!) the width of forewing blade. The fuscous macula adhering to the stigmal vein is weaker in smaller specimens, sometimes even indistinct. Apart from the sexual characters of the abdomen, the males usually differ in more greenish colour and the slenderer antennae; scapus compressed, distally dilated, in lateral view curved, about 4 times as long as wide; pedicellus about 1.3 times as long as broad; flagellum with sparse long fine hairs and only slightly dilated; funicle bisegmented, both segments subquadrate or slightly oblong;

clava very slender, longer than pedicellus plus funicle, arched, tapering to a long terminal spine.

The allotype male, together with the other specimens comes from Yugoslavia, Osijek in Croatia; reared in 1967 by Ing. B. Arčanin and Ing. B. Britvec from *Stigmella malella* Stt.

In comparison with the only European species of the genus *Closterocerus*, *C. trifasciatus* Westwood, the following characters of *A. fimbriata* (Erd.) may be stressed:

Forewing usually with only one brownish fascia, that attached to the stigma and this fascia not distinctly arched; in big specimens a vague infuscation at outer wing margin may occur (in *C. trifasciatus* 2—3 concentrically arched fasciae); scapus only moderately dilated in distal half, not triangular; flagellum narrowly fusiform, in female funicle segments and basal two clava segments only slightly transverse, in male sometimes even longer than broad; body length 0.5—1.0 mm.

Teleopterus delucchii, sp. n.

Omphale sp., Delucchi, 1958, pp. 241, 252, 260.

Chrysocharidea sp., Graham, 1963, p. 269.

F e m a l e. — Body brownish-black with metallic tint, sometimes fairly strong; head and thorax predominantly green, with bluish to violaceous apex of scutellum, abdomen cupreous. Antennae fuscous, scapus basally pale; legs pale testaceous; hind coxae and hind femora above, infuscate. Wings hyaline.

Head and thorax finely and densely punctured-reticulate, not shiny. Frons above the fork as well as vertex densely reticulate; fork connected with a facial median pale line. Antennae inserted slightly below the ocular line. Mouth about 1.5 times as wide as length of malar space which is one-third as long as the long eye diameter. Scapus slender, very slightly fusiform, not reaching the ocellus. Flagellum (fig. 9) plus pedicellus about 2.5 times as long as the scapus, moderately hairy, the hairs not long; its segments subequal in length. Pedicellus from above about 1.5 times as long as wide. Funicle bisegmented, both segments oblong, the first somewhat inflated; clava three-segmented, slender, tapering to apex, with a long terminal spine.

Thorax (distorted in most dry specimens) short, about as broad as long measured from anterior margin of pronotum to apex of scutellum. Scutellum as long as broad, sculpture meshes slightly elongate. Metanotum not large. Propodeum at meson about twice as long as the dorsellum, almost smooth, median carina not distinct. Forewing (see Delucchi, 1958, p. 252, fig. 17 G) with long marginal ciliae, the longest of which are about half the width of wing blade; marginal vein long, the stigmal subsessile, the postmarginal one rudimental; two hair-lines diverging outward from stigmal knob, the third hair-line deflecting archedly back toward parastigma; cubital hair-line only slightly sinuate, beginning under base of parastigma. Hind wing acuminate apically, broadest at hamuli, maximum width about half the length of posterior ciliae.

Abdomen broadly oval, obtusely acuminate apically, hardly longer than the thorax. Surface not very shiny, but sculpture obliterate, indistinct.

Length: 0.4—0.6 mm.

Male. — See Delucchi, 1958. Similar to female, but wings slightly narrower, antennae covered with longer hairs and the terminal spine of clava indistinct; abdomen narrower and shorter; legs darker. Length 0.4—0.6 mm.

Biology. Parasite of leaf-miners, e. g. *Stigmella malella* Stainton (Lep., Nepticulidae) in Yugoslavia. Reared also from eggs of *Caliroa cerasi* Linn. (Hym., Tenthredinidae) in the Moldavian S.S.R. and from oak leaves with mines of *Lithocolletis messaniella* Zeller (Lep., Lithocolletidae) in Italy (Delucchi, 1958). Probably an egg-larval endoparasite.

Distribution: Britain (Graham, 1963), Poland, Moldavian S.S.R., Yugoslavia (all records new) and Italy (Delucchi, 1958).

Holotype (♀) and paratypes incl. allotype: Yugoslavia, Bistrac, ex *Stigm. malella*, 13. IX. 1967 (Britvec leg.). Cat. no. 26. 204.

Further material (paratypes): Poland: Bialowieża Forest, XII. 1963, 1 ♀ (Szczepański). — Moldavian S. S. R.: Rashkov, 17. VII. 1958, 1 ♂ (Talitzki); Kishinev, 8. VIII. 1958, ex egg *Caliroa cerasi*, 1 ♀ (Talitzki). — Yugoslavia: Bistrac, with the holotype. IX. 1967, 7 ♀♀ 10 ♂♂ (Britvec and Arčanin).

The very characteristic forewing of this species was figured by Delucchi, 1958, and everybody who could see this species, easily recognized it from that figure. Graham, 1963, reported the species from Britain and placed it, though with hesitation, in *Chrysoschridia* Erdős, 1956. At that time I knew already the species from Moldavia and in January 1964, Dr. Szczepański of Warsaw wrote to me about his rearing of the species from fallen leaves. Both Dr. Delucchi and Dr. Graham knew only the males and as it was difficult to place the species in the correct genus, so both of them deferred description. Having received several females of the species I place it in *Teleopteris* Silvestri, 1914 (= *Metasecodes* Erdős, 1955).

From the other European species, *T. erxias* (Walker), the new species differs mainly by the much longer marginal fringe of the wings and by the presence of the third, returning hair-line at the stigma in the forewing, then by smaller body size, by brighter metallic colour, relatively dull sculpture and, in male, by the antennal flagellum without bristles arranged in basal whorls.

The species is named in honour of my friend Dr. V. Delucchi (now in Zurich, Switzerland), who was the first to call attention to it and to whom we owe the nice figure of its forewing.

Holcopelte stelteri, sp. n.

Female. — Body black; antennae fuscous, scapus testaceous, infusate above; legs testaceous, hind coxae infusate basally. Wings hyaline.

Head wider than mesoscutum as 25 : 22, from above crescentic-lenticular, relative total length 12, but in middle only 8; occiput deeply excavated; vertex carinaceously bordered down to temples, the latter almost absent above. Ocelli in a triangle of about 120°, POL : OOL as 4.6 : 3.4. Face convex, polished, on either side with one row of several hairs along orbit; interantennal

elevation high, with two piliferous tubercles on top. Relative measures: eye 13 : 10, malar space 4, mouth width 12; clypeus trapezoidal, its lower margin roundedly produced, reflected. Antenna (fig. 13) slender; pedicellus from above 1.6 times as long as broad and only two-thirds as long as the inflated first funicle segment; flagellar segments 1 to 4 subequal in length, decreasing in width, each with the hairs of the basal whorl archedly reaching apex of the segment; fifth flagellar segment narrowest, hardly two-thirds as long as the preceding one, with terminal spine half as long as the segment.

Thorax high, sturdy, 1.3 times as long as broad. Mesoscutum 2.6 times as wide as long, with subrectangular shoulders seen from above, in posterior half with very deep and broad notaular depressions and a twice shallower broad median furrow. Scutellum about 1.2 times as long as broad, median furrow deep anteriorly, effaced in posterior quarter. Mesoscutum anteriorly and scutellum posteriorly with raised reticulation, elsewhere with much finer engraved-reticulation. Metanotum narrow, dorsellum represented by an arched lamina. Propodeum half as long as the scutellum, moderately steep (as in *H. sulciscuta*), cross-carina below middle. Wings and legs almost as in *H. sulciscuta*, but stigmal vein distinctly bent and cubital hair-line strongly sinuate below speculum.

Abdominal petiole with large dorsal shield (as in *H. sulciscuta*), front margin of which clearly overlaps the propodeal neck. Gaster (fig. 14) less petiole broader and only slightly longer than the thorax, strongly convex, ovate, moderately acuminate posteriorly. First postpetiolar tergum covering basal one-third; hypogynium reaching two-fifths of gaster.

Length: 1.6—1.8 mm.

Male: Unknown (as in all other species of the genus!).

Biology: Parasite of *Buhriella rubicola* Stelter (Dipt., Cecidomyiidae), in its galls on leaves of *Rubus*.

Distribution: Northern Germany (D.D.R.).

Holotype (♀) and two paratypes: Germany (D. D. R.), Gross Lüsewitz nr. Rostock, ex *Buhriella rubicola*, 1959 (Stelter leg.). Cat. no. 26.205 (holotype).

The new species is closely related to *Holcopelte sulciscuta* (Thomson) and *H. lenticeps* (Erdös), if the latter is not only an aberrant specimen of the former, differing only in steeper and shorter propodeum.

Key to European species of *Holcopelte* Förster

- 1 Abdominal petiole: dorsal expanded shield strongly transverse, narrowly crescentic; its anterior margin not overlapping propodeal neck; propodeum with posterior carinaceous margin strongly bent round the narrow apex of petiole; outer angles of the side lobes of mesoscutum broadly rounded when seen from above, not nearly reaching level with the mid lobe which protrudes headwards; sculpture of scutellum longitudinally engraved-reticulate, median groove sometimes obliterate; legs pale testaceous; body length 0.9—1.6 mm *H. obscura* (Förster)
- Petiole with dorsal shield large, less transverse, its anterior margin sharp and overlapping propodeal neck; nuchal cross-carina of propodeum shifted forward almost to middle of sclerite (there imitating the costula); side lobes of mesoscutum seen from above protruding as rounded-subrectangular shoulders, almost at one level with the mid lobe; scutellum posteriorly coarsely alveolate-reticulate, median groove anteriorly always deep; body larger, 1.3—1.8 mm 2

- 2 Female gaster (fig. 14) stout, about 1.5 times as long as broad; antennae (fig. 13) longer, the first flagellar (funicle) segment as long as the fourth which is about three times as long as broad *H. stelteri*, sp. n.
- Female gaster (beyond petiole; fig. 15) about twice as long as broad; antennae shorter, first flagellar segment distinctly longer than the fourth one which is about twice as long as broad 3
- 3 Propodeum hardly shorter than half the length of scutellum, moderately declivous, about in 50° , its cross-carina high *H. sulciscuta* (Thomson)
- Propodeum still shorter, still more strongly declivous, its cross-carina low, weak *H. lenticeps* (Erdös)

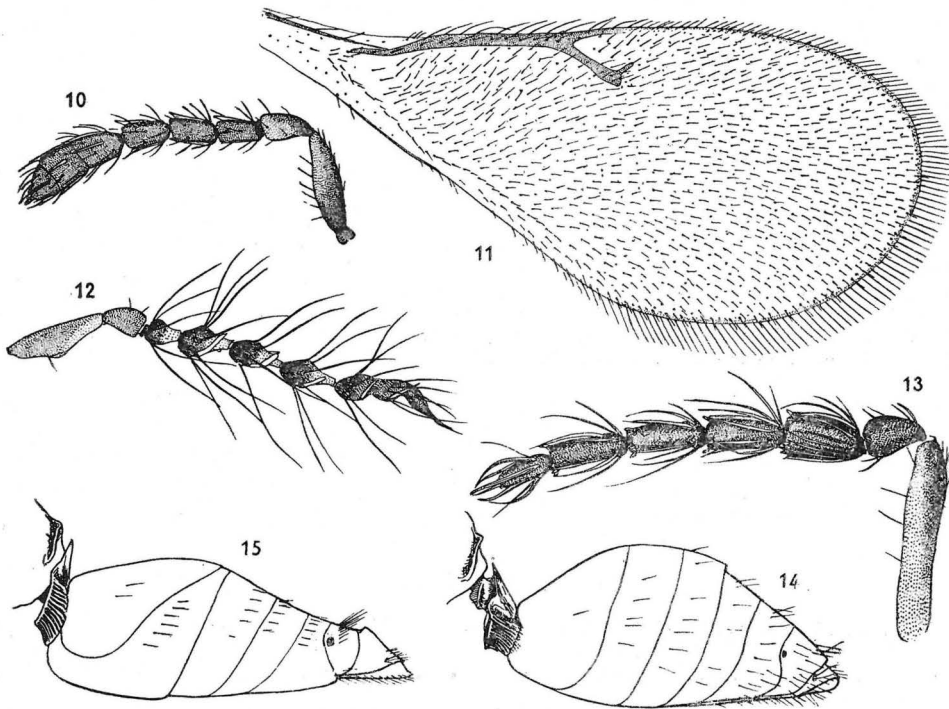
***Tetrastichus postmarginalis*, sp. n.**

F e m a l e . — Body black, with anterior sutures of axillae and upper and posterior margins of prepectus narrowly, paler brown. Antennae fuscous, with pedicellus beneath pale testaceous; legs blackish, with the trochanters brown and the following parts pale brown: knees broadly, tibiae apically, basal two segments of mid and hind tarsi; tibiae in the middle infusate. Wings very slightly infusate.

Head slightly broader than the mesoscutum; POL distinctly greater than OOL, but owing to collapsing not easy to measure. Eye distinctly hairy, short-oval, longest diameter twice length of malar space; malar suture vaguely indicated, no subocular fovea. Mouth hardly wider than length of malar space. Antenna: scapus as long as width of eye; combined length of pedicellus and flagellum about 1.3 times as long as width of head; pedicellus twice as long as broad; one very short ring segment recognizable; flagellum very slightly clavate, sparsely pilose, hairs as long as or (those on ventral side) slightly longer than width of segments; funicle segments subequal in length, the first twice as long as wide, the third about 1.7 times as long as wide; clava slightly longer than two preceding segments combined, its segments decreasing in length, the second the broadest and more closely applied to the third than to the first; terminal spine curved, of medium length (fig. 10).

Thorax 1.3 times as long as broad, moderately arched dorsally. Pronotum very short, in dorsal view visible as a narrow arched stripe, with one lateral bristle anteroventrally from spiracle on either side, otherwise bare. Mid lobe of mesoscutum as long as its greatest width, without an impressed median line; with a row of three adnotaular hairs on either side; sculpture: extremely finely longitudinally strigose-alutaceous. Scutellum weakly convex, slightly transverse (about 6 : 5), submedian lines shallow, space between them about twice as long as broad and as broad as distance between submedian line and lateral margin of scutellum; anterior pair of bristles in middle of scutellum. Dorsellum almost smooth, flat, about 2.5 times as wide as long, in the middle hardly shorter than the weak but conspicuous median carina of propodeum. Petiolar emargination of propodeum deep, subangulate; propodeum smooth, nearly flat between median carina and longitudinal depression behind spiracle; callus with four bristles, two of them near the spiracle. Mesopleura and metapleura smooth, the former with one hair beneath in front of mid coxa, and with broad

oblique depression on disc running to base of forewing. Legs rather slender. Wings relatively very long, reaching with end of marginal vein to apex of gaster. Forewing (fig. 11) broad, about 2.4 times as long as broad; relative measures: wing length 39, width 16, distance between apex of stigma and wing base 22, costal cell length 12, marginal vein 8, stigmal vein 3.5; postmarginal vein narrow but conspicuous for at least two-thirds the length of stigmal vein (its end marked by a bristle); stigma with uncus much longer than width of former. Wing blade densely hairy, speculum almost nil; basal cell very small, distally pilose; submarginal vein with 3 bristles; costal cell narrow, on underside with one line of sparse hairs. Longest marginal fringe one-eighth the wing width. Hind wing pointed at apex, fringe on hind edge as long as width of blade at hamuli.



Figs. 10–12. *Tetrastichus postmarginalis*, sp. n.: 10, female antenna; 11, female forewing (holotype); 12, male antenna. — Figs. 13–14. *Holcopelte stelteri*, sp. n.: 13, female antenna; 14, female abdomen in side view. — Fig. 15. *Holcopelte sulciscuta* (Thomson), female abdomen in side view.

Gaster sessile, in dorsal view short-oval, obtuse at apex, but sheaths shortly protruding; it is about as long as thorax less metanotum and propodeum; dorsally depressed; basal tergite occupying one-third of surface; last tergite

strongly transverse; gaster laterally with sparse bristles, the cercal bristles not much longer than the ordinary ones. Hypogynium not reaching middle of gaster.

Length: 0.7 mm.

Male. — Differs from female as follows. Apex of antennal scapus and petioles of flagellar segments pale; also abdomen basally usually pale brown. Antenna (fig. 12): scapus somewhat angularly dilated in middle ventrally, basad from dilatation with two fine bristles, ventral carina reduced to top of dilatation; pedicellus dorsally 1.4 times as long as broad, fully as wide as the funicle segments; ring segment indistinct; each of four funicle segments with a broadly spindle-shaped body and, apically, tapering in an oblong narrow petiole; each funicle segment with a whorl of 8–10 very long curved bristles; clava similarly pilose, fully as long as two preceding segments combined, with first segment detached by a constriction, and with a long terminal spine (fig. 12). Wings narrower than in female, longest marginal fringe of forewing a quarter to one-third as long as wing width. Length of body 0.7 mm.

Variation of colour in males: the Czechoslovak specimen is darker-coloured, with apex of scapus, legs and abdomen brownish-black; in the Austrian specimen the base of abdomen is brown, in the Yugoslavian specimen pale testaceous, as well as the lighter-coloured parts of legs.

Biology: Not known.

Distribution: Czechoslovakia, Austria, Yugoslavia.

Holotype: Yugoslavia, Spačva nr. Vinkovci, forest near the Sava river, 21. VI. 1965 (Bouček leg.). Cat. no. 26.207.

Further material (4 ♂♂, paratypes including allotype): Czechoslovakia, Bohemia, Raná Hill in Č. Středohoří Mts., 13. V. 1957 (Bouček). — Austria: Hütteldorf nr. Wien, 22. VIII. 1935 (Macek), allotype. — Yugoslavia: Ugljan island, Kali, 17. VII. 1966 (Hoffer); Biograd na moru nr. Zadar, 11. VII. 1965 (Bouček).

It is hard to find close relatives of *Tetrastichus postmarginalis* sp. n. among the known European species. By the developed postmarginal vein it clearly differs from all recognized species-groups and seems to be another "species sola" of the genus. Also the pedunculate funicle segments in males are a unique feature which makes the males easy to recognize.

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