

**DESCRIPTIONS OF NEW SPECIES OF THE FAMILY ENCYRTIDAE
(HYM., CHALCIDOIDEA) FROM CZECHOSLOVAKIA III.**

(19th preliminary paper for the monographic investigation of the Czechoslovak Encyrtidae)

AUGUSTIN HOFFER

[University of Agriculture in Prague, Forest Research Institute]

Ve třetím ze série příspěvků, přinášejících výhradně popisy nových taxonů nebo kompletizace dosavadních neúplných diagnóz druhů z čeledi *Encyrtidae*, zjištěných na našem státním území, popisujeme nejprve dosud neznámé samčí pohlaví rodu *Quadrencyrtus* Hffr.; dále ohraničujeme pro vědu nové druhy z rodů *Trichomasthus* Thoms., *Apterencyrtus* Ashm. a *Syrphophagus* Ashm., přinášíme redeskripci druhu *Trichomasthus dissimilis* (Tshum.) a vyjasňujeme dosud chybně interpretovaný druh *Syrphophagus fuscipes* (Dalm.). Práci zakončuje popis dosud neznámé makropterní formy samce *Ectroma reihardi* (Mayr).

Veškerý typový materiál, vztahující se k druhovým taxonům v této či v předešlých pracích nově ohraničeným, uložen je ve sbírce autorově.

***Quadrencyrtus* Hoffer**

This morphologically very distinctive monotypical genus (generotype *Q. paradoxus* Hffr.), which represents a separate tribe in the family *Encyrtidae*, was established in 1953, first in a preliminary diagnosis published in the periodical "Ochrana přírody"; a detailed description was issued in the same year in the *Acta Entom. Mus. Nat. Pragae*. Independently, Erdős 1957*) published the description of the genus and type-species along with the figure of the whole insect. Subsequently further specimens were found on our territory and in Austria (Novický's written information). All the individuals so far known belong only to the female sex.

Only this year have I succeeded in capturing a single male in southern Slovakia. Its generic characteristic is given below:

In habitus and coloration very similar to the female.

Head in frontal view short, distinctly transverse. Eyes shorter than in female. Ocelli absent also in this sex. Insertion of antennae near to oral margin. Antennae with scape expanded at the base, pedicel large, subcylindrical, and much longer and wider than the following segment; funicle composed of six cylindrical, rather short segments, which towards

*) After the issue of the original diagnosis, the author additionally changed the names of the genus and species in the proofs.

the apex of the antenna gradually increase in length and moderately in breadth; club slender, solid, tapering towards the tip; flagellar hairs fine, obliquely outstanding, not very long.

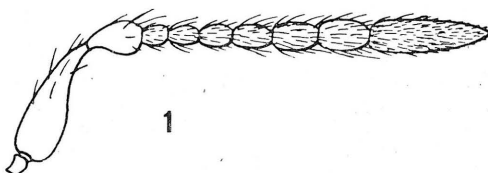
The specific structure of the thorax as in the female. Micropterous. Hind femora and tibiae considerably expanded. Abdomen shorter than in the female, subparallel, the pygostyli likewise placed at its very end.

In the remaining characters agreeing with the female.

***Quadrencyrtus paradoxus* Hoffer**

Male. Size: 0.51 mm.

Scape brown, only slightly longer than the club; pedicel brown, equal to about half the length of the scape, stout, twice as long as wide, somewhat longer than the following two segments together; flagellum black;



Quadrencyrtus paradoxus Hffr. — fig. 1: antenna of male

funicle segments 1 and 2 as long as broad, plainly narrower than the end of the pedicel; segment 3 moderately elongate; segments 4—6 fully one-half longer than broad; club but slightly longer than the preceding two segments together, at the base as stout as the end of the funicle, progressively moderately decreasing in width, its tip bluntly pointed; funicular hairs very fine, white, rather sparse, declining from the axis of the antenna at an angle of 45°, its length approximately equal to that of the third funicle segment; club having substantially shorter hairs.

Wing squamae of miniature size as in the female. Abdomen shorter than the thorax, equal to about two-thirds of its length.

Coloration of the body agreeing throughout with that of the female.

Locality: Slovakia merid.: hunting-ground Čeňkov near Štúrovo (psammophile vegetation on sand dunes) 2. IX. 1962, 1 ♂ (Allotype). Lgt. Hoffer.

***Trichomasthus* Thomson**

This genus, richly represented in the fauna of the Palaearctic region, comprises in the first place a group of species occurring in great numbers, particularly in habitats of a steppe character, for its members are parasites of scales living on various species of grasses. In spite of this, the taxonomy of these species has not been satisfactorily resolved, which is due chiefly to the extraordinary variability of the most common species, which are mostly oligophagous.

Another group comprises species ecologically far more specialized (monophagous?) and morphologically constant; they are *T. dissimilis* (Tshum.) and *T. bavarici*, n. sp., the descriptions of which we give below. As compared with the other species of this genus they are small in size, which is due to their biology [parasites of *Diaspididae*!]*)

***Trichomasthus dissimilis* (Tshumakova) n. comb.**

Coccidencyrthus (?) *dissimilis* Tshumakova, 1961, Ent. Obozr., 40 (2): 323.

Redescription:

Female: Size: 0.83—1.17 mm.

Head dark metallic blue, except for the facial cavity which is tinted with violet, and the lustrous cheeks with a green and bronzy lustre. Eyes black; ocelli ruby-coloured. Scape, pedicel, and basal four funicle segments brown; funicle segments 5—6 yellow to yellowish red; club of the same coloration as greater part of antenna, in some specimens but slightly darker; the definition of the light band on the apex of the funicle in all the hitherto examined specimens of this species is clear and constant. Pronotum black with faintly reddish posterior margin. Mesoscutum metallic blue, but less dark and somewhat more lustrous than frontovertex. Tegulae blackish brown. Axillae black with very weak bronzy tint; scutellum in some specimens entirely dark bronzy, in others with a bluish green lustre on the apical portion, or with a more or less expanded border of the same coloration at the sides, so that only the front and median parts of the scutellum are bronzy. Wings hyaline, or but very faintly yellowish, venation very light brown, marginal and postmarginal veins a little darker than the others. Femora of all pairs of legs blackish brown with the exception of the yellow knees; tibiae having a brownish and not sharply defined dark band which is of less intensity in the fore and mid legs, occupying approximately one-third to one-half of the length of the tibiae, its extension being considerably variable, however; hind tibiae dark except for their basal and apical parts; spurs and tarsi of all legs yellowish brown, only the claws being blackish. Abdomen black, in a very bright light exhibiting a lustre of indefinite colour. Exserted tip of ovipositor brown.

Head seen from above transversely suboval, plainly wider than the thorax, in lateral view angularly sharply broken, in frontal view showing the lower part as broadly rounded; occipital margin not very sharply defined. Frontovertex as broad as an eye seen from above, weakly arcuate. Ocelli forming an obtuse-angled triangle; the posterior pair separated from the occipital margin by a distance equal to their diameter, from the inner orbits again by a space somewhat smaller. Eyes almost circular, clothed with very fine and short white hairs. Cavitas facialis not very deep, in the upper part rounded; scrobes rather weakly defined; insertion of antennae placed in the middle of the space between the level of the lower orbits and the oral margin; antennal sockets distinctly farther

*) Up till now representatives of *Trichomasthus* were regarded only as parasites of scales of the family *Coccidae*.

apart than is the distance separating them from the orbits, the area between them being but very slightly elevated. Cheeks convex, somewhat shorter than the lesser diameter of an eye, with a well distinct median groove. Scape almost as long as pedicel and following four segments together, moderately flattened and in the front part slightly expanded; pedicel piriform, roughly equal to one-third the length of the scape; first funicle segment a trifle longer than broad, almost as broad as the pedicel at the end; following segments successively increasing in size, so that the sixth segment is about a half wider than the first, segments 2 and 3 but slightly longer than broad, segments 4—6 as long as wide; club equal in length to the three preceding segments together, in the basal two-thirds almost imperceptibly broader than end of funicle, towards the end becoming narrower and having an oval tip. Antennal hairing sparse, not very outstanding, stiff; length of funicular hairs approximately equal to the width of the second segment.

Pronotum very short, lamellar, the posterior margin arched. Mesoscutum a trifle shorter than scutellum, which is powerful as in the other species of the genus, strongly elevated above the propodeal surface, posteriorly bluntly pointed; axillae very short, their tips hardly contiguous. Propodeum rather short, the posticolateral corners right-angled, their hairs long and white. Wings always well developed (the brachypterous form has not been found yet), rather wide, very shortly haired; marginal ciliation not very short; lineae calvae rather narrow but complete; cellula costalis of medium width. Venation ending immediately before the middle of anterior wing margin; submarginal vein thin with several slender spines, the length of which somewhat exceeds the width of the cellula costalis, in the apical portion but very slightly expanded and moderately curved; marginal wide, twice as long as broad; stigmal a little longer than marginal, expanding towards the end, moderately curved; postmarginal generally somewhat shorter than stigmal. Legs of medium thickness; mid metatarsus three times as long as it is broad; tibial spur somewhat shorter.

Abdomen trapezoid in shape, not exceeding two-thirds of the thoracic length; first segment rather short; pygostyli shifted slightly above half the abdominal length. Ovipositor very slightly projecting.

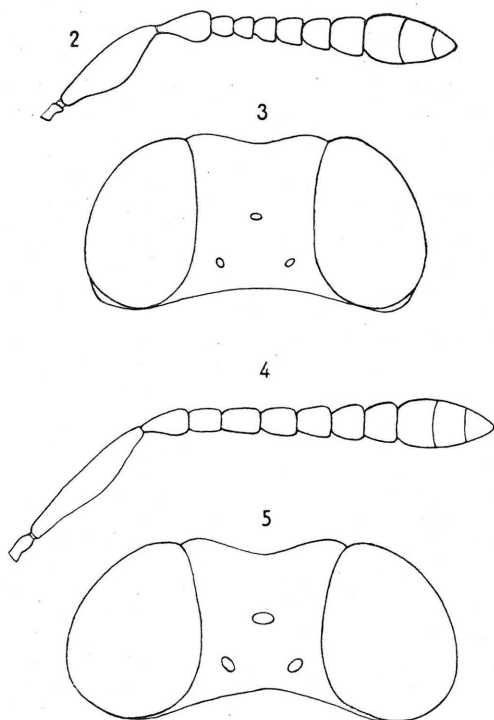
Sculpture of frontovertex thickly reticulate; cheeks smooth, strongly lustrous. Mesoscutum reticulate; scutellum granular as in the other species of *Trichomasthus*. Abdomen having a very fine reticulate sculpture, strongly lustrous. Hairs on frontovertex sparse, light, the clypeal region likewise but sparsely hairy. Hairs on mesoscutum light, regular, and appressed, but not so stout and conspicuous as in some species of the genus; scutellum very sparsely hairy.

Male. Size: 0.74—1.22 mm.

Coloration of the body to a certain degree variable, but the majority of specimens exhibit a metallic green to greenish blue head and mesoscutum; scutellum dark with a more or less distinct bronzy lustre at the base and in the median area, and with a bluish lustre at the end and sides; pronotum and abdomen nearly black; sometimes the entire speci-

men is very dark, the metallic lustre being to a considerable extent suppressed. Scape and pedicel almost black, flagellum yellowish brown. Wings hyaline; venation light brown. Coloration of legs similar to female, the colours are less intense, however, and their limits less definite.

Head broader than thorax, seen from above transversely parallel, rather short. Frontovortex broad, viewed from above twice as broad as



Trichomasthus bavarici, n. sp. — fig. 2: antenna, fig. 3: head in dorsal view. *Trichomasthus dissimilis* (Tshum.), ♀ — fig. 4: antenna, fig. 5: head in dorsal view.

an eye. Eyes of medium size, broadly suboval, their length to the cheeks being as 11:4. Ocelli of medium size, arranged in an obtuse-angled triangle (about 125°); the posterior pair separated from the inner orbits by a distance equal to or a trifle greater than their diameter, from the occipital margin again by the same distance. Antennae rather long; scape cylindrical, in the middle somewhat wider than at the ends; width of pedicel at the end equal to its length, as broad as the scape in the median line; first funicle segment at the base moderately wider than end of pedicel, narrowing somewhat towards the apex, three and three-quarter times as long as it is broad in the middle; following segments of the same width as the middle part of the first segment; club medially broader than the preceding segment, pointed at the end; length ratio of radicle, scape,

pedicel, funicle segments and club as 2:7:2.5:7.5:6:6:5.5:5:4:9; flagellar hairs fully as long as half the length of first funicle segment.

Thorax somewhat more slender than in female; pronotum less transverse; scutellum more elongate (nearly as long as it is broad at the base), a little longer than the mesoscutum, posteriorly bluntly pointed. Wings large and wide, almost hyaline; ciliation of the disk strikingly short, not very thick; linea calva broad, in the upper third shortly interrupted; cellula costalis well developed; marginal ciliation not very long. Venation reaching to half the length of the wing; submarginal vein with distal half distinctly curved and moderately thickened, along its entire length covered with long, thin setae (about 12); marginal stouter than end of submarginal, two to three times as long as broad; stigmal somewhat longer than marginal, expanding towards the end; postmarginal plainly longer than stigmal. Legs rather stout, hind femora thickened; mid metatarsus comparatively short, taking up one-third of the total tarsal length, three times as long as broad; tibial spur slender, of equal length.

Abdomen narrower and somewhat shorter than the thorax, triangular, sharply terminated.

Sculpture of frontovertex reticulate, lustrous, cheeks nearly smooth; mesoscutum having a similar sculpture, but it is much shallower and more lustrous; scutellum finely granular; abdomen almost smooth. Frontovertex sparsely hairy, thoracic hairs thicker and longer, dark, therefore inconspicuous.

Biology: An overwhelming majority of the specimens at our disposal were reared from branches of trees heavily attacked by the scale *Diaspidiotus gigas* Thiem & Gern.; it therefore appears to be beyond all question that the species described above is bound to species of *Diaspidiotus* and related genera, if indeed it is not a monophagous parasite of the said species. Only a small proportion of the specimens were taken in nature. It is necessary to mention that all the hitherto known species of *Trichomasthus* were parasites of scales of the family *Coccidae*.

Geographical distribution: USSR (North Caucasus), Hungary, Czechoslovakia.

Localities in Czechoslovakia: Bohemia merid.: České Velenice (ex *Diaspidiotus gigas* Thiem & Gern. on *Populus tremula*) 1946, 35 ♂♂, 29 ♀♀ (Holotype, Allotype and Paratypes); Lomnice n. Luž. (fen vegetation round the Hlohovecký pond) 8. VII. 1952, 1 ♀ (Paratype); Borkovice peatbog (swept from bushes and trees) 3. VIII. 1954, 1 ♀ (Paratype). Slovakia merid.: Štúrovo (small steppe valleys towards Ebed) 7. VII. 1947, 2 ♀♀ (Paratypes); Slovakia or.: Turňa nad Bodvou (ex *Diaspidiotus gigas* on *Salix caprea*) 1948, 27 ♂♂, 17 ♀♀ (Paratypes). All lgt. Hoffer.

Systematic position: This species, in habitus recalling to a considerable degree a small species of the genus *Microterys* Thoms., must be placed in the genus *Trichomasthus* Thoms. on the basis of a number of characters given in the diagnosis.

The typical specimens of Tshumakova from the USSR have also been reared from *Diaspidiotus gigas*. Through the kindness of Dr. Trjapitzin I have received several specimens from the type series; they appear to be quite identical with ours, only the frontovertex is imperceptibly narrower, the light band on the antennae snow-white, and the venation lighter.

In the material which Dr. Erdős has loaned me for study there was also one female specimen of this species, labelled *Microterys hyalipennis* Mayr (Hungaria, Tasnád, 6. VII. 1912; lgt. Biró). The diagnosis of *Encyrtus hyalipennis*, as originally erected by Mayr, as well as Mercet's later redescription, to a considerable extent agree with *T. dissimilis* Tshum. However, the study of the type of *E. hyalipennis*, undertaken by Graham, has shown that this species is identical with *Encyrtus taeniatus* Först., which must be placed in *Aphidencyrtus* Ashm.

The species *T. bavarici* n. sp., described below, seems to be conformable to this species in habitus, but in details the two species are substantially different.

***Trichomasthus bavarici*, n. sp.**

F e m a l e. Size: f. macropt.: 1.12—1.25 mm.: f. brachypt.: 0.66—1.05 mm.

In coloration differing from the foregoing species above all in having only the sixth funicle segment yellow.*) The metallic coloration of the body is usually more green than greenish blue and includes also the scutellum, which in the preceding species is always for the most part dark; the green lustre is generally less intense so that the brown pigment of the cuticle can often be seen. The coloration of the dark parts of the antennae is more brownish, and the disc of the wing in the macropterous form (even rudiments in brachypterous individuals) exhibits a conspicuous light brown tinge. Abdomen blackish brown. Colour scheme of the legs agreeing with that in the foregoing species, but the dark parts are lighter (brown).

From the morphological point of view distinguished not only by the sculpture but in the main by the very small ocelli and their arrangement; they form an equilateral triangle, the posterior pair being more distant from the inner orbits as well as from the occipital margin of the head, which distances are nearly the same and equal to a good half of the distance separating them from each other, or to the triple width of their diameter. Frontovertex in this sex of the same width as an eye (similar to *T. dissimilis* (Tshum.)). A conspicuous distinction from this species is found in the antennae: they are distinctly shorter; pedicel relatively large; first funicle segment as long as broad, half the length of the pedicel and much thinner than the latter; following segments gradually increasing in size, as long as wide, or slightly transverse; club rather broader than end of funicle, as long as last three funicle segments together.

Scutellum somewhat shorter, more rounded at the end, the white hairs of the mesoscutum and scutellum thicker, more prominent and longer than in *T. dissimilis* (Tshum.). Wings relatively of a smaller size with a longer ciliation of the disc, the cellula costalis very narrow, and the linea calva practically indistinct. Submarginal vein almost straight, distally but slightly expanded; all the other veins being proportionally

*) In all the specimens available this character is absolutely constant and invariable, while the extension of the white band at the apex of the funicle, e. g. in *T. cyanifrons* (Dalm.), varies strikingly.

somewhat shorter than in *T. dissimilis* (Tshum.). The great majority of specimens are brachypterous; rudiments of fore wings longish, their tips subtruncate, reaching beyond the end of the basal third of the abdomen; rudiments of hind wings bluntly conical, shorter by one-fourth than the fore wings, and half their width. Legs short; mid metatarsus two and a half times as long as broad; tibial spur of the same length.

Abdomen somewhat shorter than the thorax, its shape similar to that of the preceding species, but the ovipositor is almost hidden (its barely visible tip is light in colour).

Sculpture of the frontovertex very shallow, almost imperceptible; hairs very sparse. Mesoscutum having a very fine and thick reticulate sculpture, its rich white hairs appressed. Scutellum very finely granular, sparsely hairy.

Male. Size: f. macropt.: 0.80—0.91 mm.; f. brachypt.: 0.65—1.27 mm.

Coloration of head and thorax including scutellum dark metallic greenish blue to bluish; abdomen black with only a very weak metallic tint. Antennae unicolorous yellowish brown. Disk of the wing in the macropterous form (as also the rudiment in the brachypterous form) similar to the female, brown smoky in its total extension; venation somewhat darker than in *T. dissimilis*, particularly the marginal and postmarginal veins. Legs of a similar coloration to the female.

Head shaped similar to that of *T. dissimilis* (Tshum.), but the frontovertex is relatively very broad, its width to the eyes viewed from above being as 10.5 : 4. Eyes subcircular, small; their length to that of the cheeks as 9 : 7. Ocelli comparatively very small in size, arranged in an obtuse-angled triangle (about 110°); the posterior pair very far from the inner orbits (this distance equals two and a half to three times their diameter), from the occipital margin again they are separated by a space one and a half times to twice as long as is the ocellar diameter. Antennae little shorter than in the foregoing species; however, the relative width of the funicle segments is distinctly greater; first segment two and a half times as long as broad, segments 2—6 one and a half times to twice as long as wide; club broadest at the base, just a trifle broader than the preceding segment, narrowing towards the apex, its tip pointed; length ratio of radicle, scape, pedicel, funicle segments and club as 2 : 6 : 2.5 : 6 : 5 : 5 : 5 : 5 : 4 : 8; the hairs equal to about two-thirds the length of the basal funicle segment, but it is as long as in the preceding species with regard to the relatively shorter flagellum.

Thorax of a similar structure to that in the preceding species. Wings in the macropterous form, as compared to *T. dissimilis* (Tshum.), relatively smaller in size and, as mentioned above, strikingly coloured; hairs plainly longer and thicker, lacking only in the very basal tip; linea calva very narrow, parallel, complete; cellula costalis almost suppressed. Venation ending shortly before the middle of the wing; submarginal vein nearly straight, along the entire length of almost equal width, with shorter ciliation; marginal hardly one-half longer than broad; stigmal distinctly longer than marginal but still somewhat shorter than in the preceding species; postmarginal well developed, longer than stigmal. Ru-

diments of wings in the brachypterous form (which as in the female greatly outnumbers over the macropterous) moderately exceed the basal third of the abdomen, somewhat more slender than in the female, at the end subtruncate. Legs of a similar structure to those of *T. dissimilis* (Tshum.), with the hind femora likewise thickened but relatively shorter; mid metatarsus still a little shorter than a third of the total tarsal length, only twice as long as broad; tibial spur of the same length or but slightly longer.

Abdomen narrowly triangular as in the preceding species.

Sculpture of frontovertex distinctly less coarse than in *T. dissimilis* (Tshum.), with a waxy lustre; mesoscutum shallowly reticulate, lustrous; scutellum finely granular. Abdomen smooth, the hairs as in the foregoing species.

Biology: All the hitherto known specimens were reared from the scale *Aspidiotus bavaricus* Lind., living on the roots of *Calluna vulgaris*. It therefore appears to be a specialized parasite of this species.

Geographical distribution: Czechoslovakia.

Localities in Czechoslovakia:

Forma *macroptera*: Bohemia merid.: Borkovice — Mažice 1946, 2 ♂♂, 2 ♀♀ (Holotype, Allotype, Paratypes); Mirovice 1946, 2 ♂♂ (Paratypes).

Forma *brachyptera*: Bohemia merid.: Borkovice — Mažice 1946, 4 ♂♂, 7 ♀♀ (Paratypes); Mirovice 1946, 2 ♂♂, 3 ♀♀ (Paratypes); Bohemia orient.: Počátky (600 m. above sea level) 1946, 8 ♂♂, 19 ♀♀ (Paratypes). Moravia occid.: Velká Javořice (800 m. above sea level) 1946, 2 ♀♀ (Paratypes).

All ex *Aspidiotus bavaricus* Lind. de *Calluna vulgaris*. Lgt. Hoffer.

Systematic position: In its small size, habitus and similar biology this species comes close to *T. dissimilis* (Tshum.), (described above), but it is distinguished from it at a glance by the different structure of the antennae, and the very small size of the ocelli and their arrangement, the finer sculpture, the different coloration of the scutellum and antennae, and the smokiness of the wings in the macropterous form; the wings and legs are somewhat shorter and the antennae a trifle thicker than in the preceding species; also the hairs on the disc of the wings as well as of the entire thorax are plainly longer. In the males, in addition to these characters, are the strikingly small size of the eyes and the width of the frontovertex. The brachypterous form is predominant in both sexes, whereas in the foregoing species this form has not yet been found.

***Apterencyrtus trichomasthoides*, n. sp.**

Female. Size: 1.30—1.66 mm.

In comparison with the other species of the genus, the habitus is somewhat flatter.

Frontovertex greenish blue; face in median area dark violet, the neighbouring regions inclusive of clypeum blue; cheeks violet. Eyes black; ocelli brownish red. Radicle yellow; scape black, at the very end yellowish brown; pedicel yellowish brown, with the exception of the dorsal part which is almost black; basal four segments of funicle brown, club

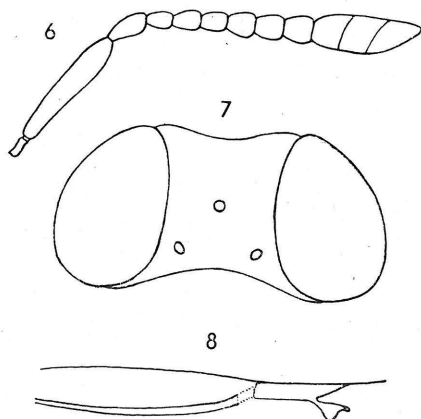
of the same coloration or darker; funicle segments 5—6 yellow to yellowish brown. Pronotum black, its posterior margin metallic reddish; mesoscutum greenish blue, along the posterior margin bordered by a narrow dark bronzy band; scutellum dark bronzy, with axillae usually darker; metanotum and propodeum almost black. Wings hyaline, or but faintly yellowish; venation but slightly pigmented, only the marginal and post-marginal veins being of a somewhat more intensive yellowish brown colour. Femora of all three pairs of legs black with a narrow yellow area at the knees; fore and mid tibiae yellow, their basal half having a black leaving out the part at the knees, which is light in colour; spurs also light; hind tibiae black with a yellow band at either end; tarsi of all pairs yellow, except for the last segment which is black-brown (sometimes even the last but one is blackish). Abdomen black with changeable metallic reflexes on the directly illuminated surfaces.

Head seen from above nearly transversely oval, in profile angularly broken in the frontal portion, in frontal view showing a broadly rounded lower margin. The flat frontovertex at the level of the anterior ocellus being as broad as an eye seen from above, its posterior margin angularly, but not very sharply, defined. Ocelli arranged in a triangle distinctly but not broadly obtuse-angled; the posterior pair separated from the eyes by a distance equal to their diameter, from the occipital margin again by double that distance. Eyes broadly oval (almost circular), clothed with short hairs. Cavitas facialis frontally rounded; insertion of antennae immediately below level of lower eye margins and rather distant from oral margin; antennal sockets separated from each other by a distance somewhat greater than is their distance from the orbits. Cheeks well-developed, arched, of the same length as the lesser diameter of an eye. Scape flattened, moderately expanded in the distal two-thirds, as long as the first five funicle segments together; pedicel elongate, equal to one-third the length of the scape; first funicle segment about as long as wide, a trifle narrower than the end of the pedicel; following segments nearly as long as broad but successively increasing in size; club equal in length to the three preceding segments together, in the median part almost imperceptibly wider than the end of the funicle, pointed towards the end, distinctly divided into three segments of equal length; hairs of antenna fine, appressed, the longest hairs of the basal funicle segments being almost as long as the width of these segments.

Pronotum distinct, anteriorly strongly convergent, the posterior margin almost straight. Mesoscutum considerably transverse, and but moderately arcuate. Scutellum powerful, strongly elevated above the propodeal surface, dorsally rather flat, posteriorly bluntly pointed, somewhat longer than the mesoscutum; axillae relatively short, their thin tips hardly touching. Propodeum short, posticolateral corners right-angled, blunt. Wings normally developed, rather broad, their hairs short and fine; marginal ciliation likewise short. Linea calva very narrow, at the marginal vein indistinct. Cellula costalis narrow. Submarginal vein faintly curved, somewhat expanded in the distal half; marginal approximately three to four times as long as wide, distinctly broader than the end of

the submarginal; postmarginal and the not very declined stigmal equal in length, a trifle shorter than the marginal. Legs rather stout, mid metatarsus three times as long as the following tarsal segment; mid tibial spur shorter than metatarsus.

Abdomen triangular, equal to two-thirds the length of the thorax. Basal segment very short. Pygostyli shifted as far as the end of the first fourth of the abdomen. Ovipositor concealed.



Apterencyrtus trichomasthoides, n. sp.,
♀ — fig. 6: antenna, fig. 7: head in
dorsal view, fig. 8: venation.

Sculpture of entire body rather coarse, on the head and scutellum granular, on the mesoscutum reticulate; thus the whole surface looks rough. Abdomen very densely reticulate, semi-mat. Frontoververtex with sparse hairs, those on the cheeks and on the convex facial area being thicker, white; mesoscutum and scutellum with regularly spaced, thin, appressed greyish white hairs.

Male: Unknown.

Biology: The species described appears to be closely specialized on peat formations, which is demonstrated by the fact that all the so far known specimens come from the south Bohemian peatbogs, so rich in species confined to habitats of this type. The host is not yet known.

Geographical distribution: Czechoslovakia.

Localities in Czechoslovakia: Bohemia merid.: Borkovice peatbogs 5. VIII. 1954, 2 ♀♀ (Paratypes); 6. VIII. 1954, 5 ♀♀ (Holotype and 4 Paratypes); 18. VIII. 1954, 1 ♀ (Paratype). All lgt. Hoffer.

Systematic position: This species seems to be very interesting from the taxonomic point of view, as it combines the characters of two apparently very distinct genera *Apterencyrtus* Ashm. and *Trichomasthus* Thoms.! The general habitus, the angular break of the head in

lateral view, the structure of the wings (venation, lineae calvae), the characteristic coloration of the legs, and to a considerable extent the structure of the antennae and scutellum, strongly recall *Apterencyrtus*; from our species *microphagus* Mayr, however, is distinguished at a glance by the absence of the hair-brush on the apex of the scutellum, and by the broad frontovertex. The granular sculpture of the body (greatly differing from the very fine longitudinally arranged striation seen in *Apterencyrtus*) is again analogous to the sculpture exhibited by species of *Blastothrix*. The appressed, long hairs of the mesoscutum is a character peculiar to both of the afore-named genera.

In future, the knowledge of the male would help to generic classification of this species.

Similar difficulties in the generic classification are encountered, as has already been stated, in the case of *Trichomasthus niveicrus* Erd. [= *Apterencyrtus eriococci* Ferr.]. This species likewise combines the characters of these two genera; for this reason contemporary authors take different views of the position of this species.

***Syrphophagus* Ashmead**

In the first publication of this series we described an outstanding representative of this genus from the species group *herbidus* (Dalm.). In this paper we give the description of a new species from the group *aeruginosus* (Dalm.), remarkable in its morphological structure and distinctive way of life (*S. arundinicola* n. sp.), and some notes relating to the little known and often incorrectly interpreted *S. fuscipes* (Dalm.), as well as the diagnosis of another related species, *S. fabulosus* n. sp.; the last two species form, to a considerable degree, a distinct evolutionary branch within the rather heterogeneous genus *Syrphophagus* Ashm., even though *S. fabulosus* exhibits yet a number of quite specific characters.

***Syrphophagus arundinicola*, n. sp.**

Female. Size: 0.86—1.27 mm.

Body including abdomen dark olive green with light green reflection, except for the scutellum where the predominating lustre is bronzy, and the cheeks, pleurae, pronotum and propodeum which exhibit a darker shade of brown with a dark metallic tinge; frontovertex (including face) with more of a greenish blue tinge. Eyes black, lustrous; ocelli ruby-coloured. Scape and pedicel almost black, entire flagellum uniformly dark brown. Femora dark, with the exception of a yellowish brown band at the knees; fore and mid tibiae having a dark band in the basal half; in the hind tibiae this band extends along their entire length with the exception of both ends which, similar to those of the tarsi, are yellowish brown, only the last tarsal segment being moderately blackish. Wings hyaline; venation brown. Exserted portion of ovipositor brown.

Head anteriorly more converging than in the other species of this group, much narrower than the thorax, with the frontovertex rather convex and a little broader than an eye viewed from above. Eyes clothed with very short hairs. Ocelli forming a distinctly obtuse-angled triangle, small in size, the posterior pair almost touching the inner orbits, from the occipital margin again separated by a distance fully equal to twice their diameter. Antennae of a very specific structure; scape moderately flattened but not expanded in the median part; pedicel a trifle longer than a third of the scape; funicle segments at the base small, the distal segments being strikingly longer and somewhat broader (fig.1); first funicle segment narrower than the pedicel at the end, moderately longer than wide; length of segments 2—3 nearly equal to their width; following three segments much longer than the preceding ones, their length exceeding their width by onehalf; club approximately as long as the three preceding segments together, flattened, seen from above subovoid in shape, but pointed at the end, in the middle clearly broader than the end of the funicle, in lateral view narrow, parallel, its end being obliquely truncate; antennal hairs about equal to the width of the basal funicle segments.

Pronotum lamellar. Mesoscutum relatively very short, its length to that of the scutellum being as 9 :13, broad at the base, anteriorly strongly narrowing. Scutellum considerably and regularly arcuate, its end broadly (almost semicircularly) rounded. Propodeum short but distinct, its corners right-angled and with a tuft of white hairs. Wings in relation to the body large, thickly and rather finely haired, lineae calvae wide, but interrupted by two oblique parallel rows of hairs; marginal ciliation rather short. Venation attaining half the length of the wing; submarginal vein in distal half moderately curved and expanded, the expansion being the greatest in the middle and narrowing towards either end; marginal twice as stout as is the submarginal at the end, two and a half times as long as wide; stigmal somewhat shorter than marginal; postmarginal nearly equal to stigmal in length. Legs strikingly slenderer than in the other species of the genus; mid metatarsus fully four times as long as it is broad; tarsal spur somewhat shorter than metatarsus.

Abdomen heart-shaped, somewhat shorter than the length of the thorax. Pygostyli shifted above half its length. Ovipositor stout, but only very slightly protruding.

Sculpture of the frontovertex thickly but shallowly reticulate, the pin-punctures being sporadic and fine, barely visible. Mesoscutum and scutellum likewise shallowly reticulate, lustrous; the pin-punctures on the mesoscutum regular but very small, on the scutellum more sparse and nearly indistinguishable; hairs on this part of the thorax black to grey, fine, rather long and regular, well visible even on the scutellum. Abdomen having a very thick and fine reticulate sculpture, lustrous, rather thickly haired.

Male: Unknown.

Biology: The two specimens that served as a basis for this diagnosis were captured in habitats of the same character; they were swept

from rushes in autochthonous localities. Thus this species seems to be closely bound to formations of this type. The host is not known yet.

Geographical distribution: Czechoslovakia.

Localities in Czechoslovakia: Bohemia sept.: Reserve "Břehyňský rybník" 30. VIII. 1958, 1 ♀ (Paratype); Bohemia merid.: Nový rybník near Soběslav (reserve) 20. VIII. 1955, 5 ♀♀ (Holotype and 4 Paratypes). Lgt. Hoffer.

Note: This species, which probably belongs to the group *aeruginosus* (Dalm.), is distinguished from all the related species by a number of characters. The main typical characters are the predominant olive green coloration, the shrunken (short) habitus, the comparatively thick, striking hairiness, the specific structure of the head, the small ocelli, the very distinctive structure of the antennae where the basal segments are much shorter than the distal ones, the short, anteriorly strongly narrowed meso-scutum, the broadly rounded scutellum, the short marginal and the very short stigmal veins (as compared to the relatively long postmarginal), the thin legs, and the heart-shaped abdomen.

In certain way, this species approaches to those belonging to the genus *Aphidencyrtus* Ashm., very near and with difficulty distinguishable from the genus *Syrphophagus*, mainly from its species-group *aeruginosus*.

The typical specimen is not conspecific with any of the species briefly described by earlier authors, as has been kindly noted by Dr. M. W. R. de V. Graham. The two identical specimens found in different localities of a similar character evidence that *S. arundinicola*, n. sp. really is a valid specific taxon and not a case of fortuitous teratology as a cursory glance at a form so distinct might lead one to suppose.

The following two species, in habitus more reminiscent of *Microterys*, constitute a special group in the genus *Syrphophagus*.

***Syrphophagus fuscipes* (Dalman)**

This species was until recently either referred to related genera (Thomson, 1875, Ferrière, 1953), or fundamentally interpreted incorrectly (Mayr, 1875, Erdős, 1957)*). The present classification was made by Graham, 1958 having with regard to the sharply defined occipital margin of the head and the structure of the venation, which characters are inconsistent with its placement in *Pseudencyrtus* Ashm. The species became clear to us only thanks to the help of this author, who had the opportunity of examining the only existing male in Dalman's collection with which he then compared some of our specimens.

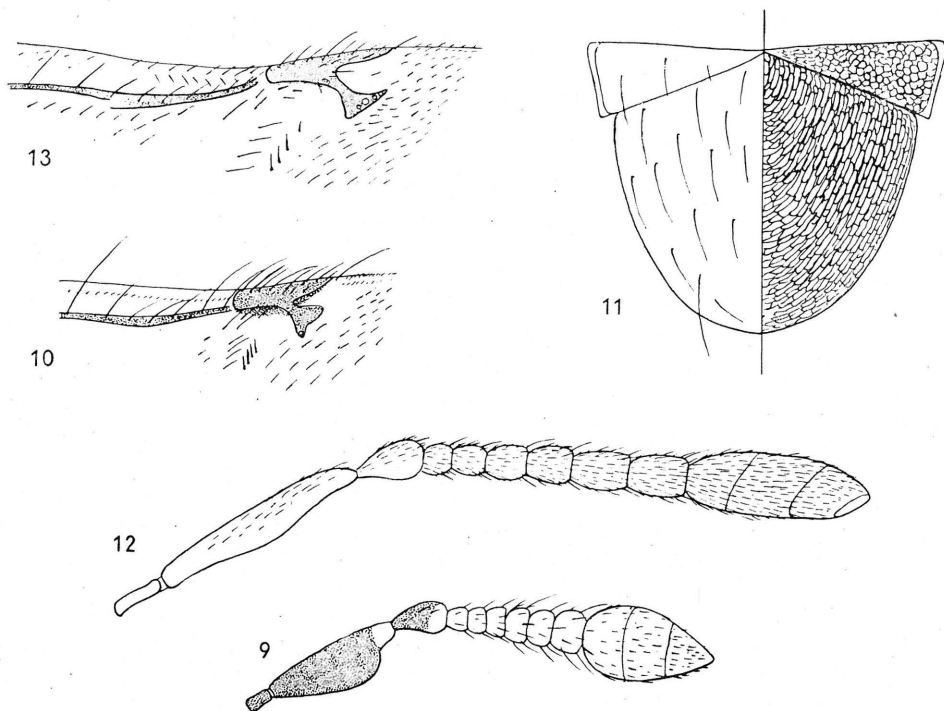
The typical characters of this species are in the main: the shortened habitus (scutellum posteriorly broadly rounded, abdomen shortly heart-

*) One of his specimens labelled *fuscipes* Dalm., kindly loaned to me and examined by Graham, belongs to *Pseudencyrtus misellus* (Dalm.). Erdős consequently also placed this species into the genus *Pseudencyrtus* Ashm.

shaped), the expanded scape, the relatively thick marginal vein which is strikingly darker than the other veins, the well developed postmarginal which is equal to the stigmal in length, the metallic blue coloration of the body, and the almost entirely black tibiae. The male exhibits stout antennae, whose funicle segments (with the exception of the longer first one) are only about twice as long as wide, their hairs being a trifle shorter than is their length; club equal in length to the two preceding segments together.

S. fuscipes (Dalm.) appears to be a montane element as is evidenced by our present material. Our collection contains a rather large series of specimens (2 ♂♂ and 30 ♀♀) from the locality Hůrka v Pošumaví (17.—23. VII. 1954) and 3 ♀♀ from the near-by Černá v Pošumaví; these localities are approximately 700 m. above sea level. Other specimens (2 ♀♀) come from the hill Choustník near Tábor (about 650 m. above sea level). Lgt. Hoffer.

Our material includes one more defective female specimen which is distinguished from *S. fuscipes* (Dalm.) by a thin and shorted marginal vein, a shorter postmarginal, and a very broad frontovertex; it obviously belongs to another species. However, both flagella are broken in this specimen. It was captured at Hádý near Brno 14. VII. 1941.



Syrphophagus fabulosus, n. sp. — fig. 9: antenna, fig. 10: venation, fig. 11: scutellum.
Syrphophagus arundinicola, n. sp. — fig. 12: antenna, fig. 13: venation.

***Syrphophagus fabulosus*, n. sp.**

F e m a l e. Size: 0.93—1.25 mm.

The coloration of this species is very remarkable and distinct from all the so far known species of the genus. Head black, only the centre of the cavitas facialis being blue with a purple border, and the temples and a part of the cheeks metallic bluish violet. Eyes black: ocelli ruby-coloured. Scape black, at the very end yellow; pedicel black: funicle and club light yellowish brown. Pronotum black with a metallic red posterior border. Mesoscutum of an intense violet or bluish violet coloration, metallic lustrous, its posterior margin narrowly bordered with red; tegulae black. Scutellum having a uniform light olive green lustre, except for the axillae which exhibit a golden lustre. Pleurae metallic reddish violet. Propodeum black with a faint bronzy tint. Wings hyaline, venation brown, but the marginal and postmarginal veins are much darker than the relatively lighter stigmal. Fore and mid femora black with yellow knees, entire hind femora black; tibiae of fore and mid legs having the basal half black and the distal half yellow, hind tibiae black except for the distal fourth, which is yellow; tarsi yellow, only the last segment black; the limits of the colours on the legs are sharp. Abdomen black, the first segment having a greenish lustre. Exserted portion of ovipositor black.

Head viewed from above short, its width equal to that of the thorax, anteriorly more strikingly narrowing than is seen in true representatives of *Syrphophagus*, in frontal view likewise short, with a broadly rounded lower margin. Frontovertex broad, its width to an eye seen from above being as 12:7; ocelli arranged in a strongly obtuse-angled triangle, the posterior pair separated from the occipital margin of the head by a distance hardly equal to their diameter, from the inner orbits again by a space which is even smaller. Eyes not very large, almost circular, bare. Cavitas facialis averagely excavated; insertion of antennae distinctly below the level of the lower orbits. Cheeks convex, not very long. Antennae short, stout; scape flattened, strikingly expanded in the middle, as long as the pedicel and four following segments together; length of the pedicel exceeding one-third of that of the scape; first funicle segment quadrate, plainly narrower than the end of the pedicel; following segments transverse, progressively strongly expanding, so that segment 6 is twice as broad as the basal one, with long but sparse hairs (the length of the hairs being equal to at least twice the length of the basal segments); club large, as long as the whole funicle, in its median part nearly double the width of the last funicle segment, distinctly divided, at the end bluntly pointed.

Pronotum very short, its posterior margin almost straight. Mesoscutum rather arched, twice as broad as it is long. Scutellum comparatively large (its length to that of the mesoscutum being as 17:10), of a very specific shape and sculpture, moderately convex, shaped like an equilateral triangle having the posterior sides curved. Propodeum short, broad. Wings wide, hyaline; the basal third almost completely bare, the re-

mainder of the disc with very short, thick ciliation; linea calva nearly combining with the hyaline area of the wing: marginal ciliation of medium length; cellula costalis well developed. Venation reaching half the length of the wing; submarginal vein slender, in the distal part but slightly curved and expanded, bearing eight very long bristles which exceed the width of the cellula costalis; marginal very thick, twice as long as broad; stigmal very short, triangular, not even attaining the length of the marginal; postmarginal stout, a trifle longer than the stigmal. Legs of medium thickness and length; hind tibiae substantially thicker than mid tibiae; mid metatarsus three times as long as it is broad, mid tibial spur but slightly shorter.

Abdomen trapezoid in shape, much shorter than the thorax, the basal segment short and the pygostyli shifted as far as to the end of the basal third of the total length. Ovipositor extraordinarily slender; the exerted portion is equal to one-fifth of the abdominal length.

Sculpture of the head and mesoscutum thickly reticulate. Scutellum on its entire surface very thickly and finely longitudinally striate, in the median part the striae are elliptically concentrically arranged (similar to *Coccidencyrtus ambiguus*, but the striae are even somewhat thicker); a sculpture of this kind does not occur in any other of the species of this genus. Punctuation of the mesoscutum and scutellum of the same type, consisting of very fine widely separated but regularly spaced pin-punctures; the hairs on this part are long, thin, black, turned backwards but not appressed. Sculpture of the abdomen very fine, surface strongly lustrous; hairs less prominent than on the thorax.

Male: Unknown.

Biology: The two specimens so far known come from localities of a similar character; one was captured by sweeping on a peat habitat, the other in a locality of a tundra type at the foot of the Bohemian Forest. The host is still unknown.

Geographical distribution: Czechoslovakia.

Localities in Czechoslovakia: Bohemia merid.: Borkovice peatbog 4. VIII. 1954, 1 ♀ (Holotype); Černá v Pošumaví (tundra, about 700 m. above sea level) 22. VII. 1954, 1 ♀ (Paratype). Lgt. Hoffer and Štastná.

Systematic position: Only with much hesitation do I place this species in the genus *Syrphophagus*, in affinity with of *S. fuscipes* (Dalm.) which it resembles in the habitus, the same shape of the marginal and postmarginal veins, and the strongly expanded scape. However, a number of characters of this remarkable species are quite specific. They are, the powerful and rather flat scutellum with its striate sculpture, the specific shape of the antennae (short funicle segments, large club), the very short and strongly expanding stigmal vein, and the very thin ovipositor. Owing to its unique coloration it is the most beautiful species of our *Encyrtid* fauna.

The knowledge of its biology would aid to range this species to the definitive system in this case. Possibly in future we will range this and afore-mentioned species to the genus *Aphidencyrtus* Ashm. (form of scutellum, antennae, size!) if they prove to be parasites of Aphids.

Ectroma reinhardi (Mayr)

Forma macroptera, male. The macropterous forms of the female of species of *Ectroma* Westw. occur very sporadically together with brachypterous individuals. In our territory we have managed to find the macropterous females of all the four species known from our country; they were described and figured by the author in a publication on the genus "*Metallon* Walk." (correctly: *Ectroma* Westw.) in the year 1957.

Only this year have I found in older material from southern Moravia a single macropterous male belonging to the species *E. reinhardi* (Mayr), which is the only known winged male of this genus. Its concise characteristic is given below:

Wings fully developed, exceeding the apex of the abdomen by a good third; however, they are plainly narrower and distally more narrowing than in the macropterous female. The smokiness of the disc is of exactly the same type as in the other sex, rather prominent, but still somewhat fainter than in the female. Hairs distinctly shorter, particularly in the basal area of the disc. Marginal vein of the same length as in the female, but strikingly thinner (nearly as slender as the apex of the submarginal), of intense coloration; postmarginal as thick and as dark coloured as the marginal, equal in length to the light and slender stigmal.

Morphological distinctions between the macropterous and brachypterous forms of the male sex are found also in the comparative lengths of the antennae and legs. The antennae of the macropterous form are clearly longer than those of the brachypterous form, relatively thinner; the pedicel is broader than the first funicle segment which is four times as long as it is broad (in the macropterous form \pm three times, of the same width as the pedicel); similar relations can also be seen in the other segments as well so that e. g. the sixth funicle segment, which in the macropterous form is two and a half times as long as it is broad, is quadrate or but slightly elongated in brachypterous individuals; club two and a half times as long as wide, in the brachypterous form it is at most twice as long as it is broad.

A comparatively considerable difference between the two forms is found in the thickness of the legs. In the macropterous form the legs are substantially more slender than in the brachypterous form, a character, which is especially marked chiefly in the tarsi of the mid and hind pairs. For comparison we give at least the following relation: the mid metatarsus of the brachypterous form is \pm three times as long as broad, while in the macropterous form it is fully four times as long as it is broad.

The specimen here described was captured on the limestone steppe of the southern slope of the Pavlovské kopce (Moravia merid.) 5. VIII. 1957. Lgt. Hoffer.

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paper the possibility of a direct study of *Coccidencyrtus? dissimilis* Tshumakova was of special importance. I am very grateful to the Rev. Dr. J. Erdős (Tompá) for his kind loan of a number of specimens of *Syrphophagus* belonging to his collection. Especially must I express my gratitude to Dr. M. W. R. de V. Graham (Oxford) for the valuable assistance given in the main in comparing a great many specific taxa with the typical specimens of earlier authors, which relates also to several of the species dealt with in this paper.

Summary

In the third part of the series comprising the diagnoses of new or incompletely described specific taxa of the family Encyrtidae from Czechoslovakia we delimit first the hitherto unknown male sex of the species *Quadencyrtus paradoxus* Hffr.; further we describe a new species of *Trichomasthus* Thoms. (*bavarici* n. sp.), in addition to a more detailed redescription of *T. dissimilis* (Tshum.) and a new species of *Aptencyrtus* Ashm.; the present knowledge of *Syrphophagus* is enlarged to include another two species [*S. arundinicola*, n. sp., a distinctive inhabitant of Phragmiteta, and *S. fabulosus*, n. sp., a considerably differentiated type within this genus, which exhibits certain relations to *S. fuscipes* (Dalm.), on which some notes are likewise added]. The paper is concluded by the description of the hitherto unknown macropterous form of the male of *Ectroma reinhardi* (Mayr.).

All the types of the new specific taxa described here or in previous papers are deposited in the author's collection.

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