

MISCELLANEA ENCYRTIDOLOGICA III (HYM. CHALCIDOIDEA)¹⁾

AUGUSTIN HOFFER

(Katedra ochrany rostlin Vysoké školy zemědělské v Praze)

Pod tímto nadpisem uveřejňujeme obvykle významnější systematické nebo bionomické poznatky z různých tribů této čeledi.

V práci nejprve ohraničujeme nový rod *Cerchysiopsis* na základě taxonomického zhodnocení genotypu *C. confusus* n. sp.; dále přinášíme redeskripci rodu *Agromyzæphagus* Gah. i jeho typického druhu *detrimentosus* Gah. a příspěvek k taxonomii a systematickému zařazení rodu *Hungariella* Erd. Následuje diskuse o příbuzenských vztazích některých druhů se čtyřzubými mandibulami, stojících nejbližší typu rodu *Ixodiphagus* How., dále popis rodu *Eupæcilopoda* Nov. & Hffr. (s totálním vyobrazením genotypu *perpunctata* Masi) a přehled dosavadních encyrtidologických výzkumů našich rákosíšť (s vyobrazením druhu *Boučekiella depressa* Hffr.).

Samostatnou částí práce je stať obsahující synonymické nebo jiné kritické poznámky, týkající se středoevropských druhů čeledi nebo druhů majících k naší fauně určitý vztah.

Obrazová část je doplněna snímky některých klasických lokalit druhů zde nebo v předchozích pracech popsaných.

In this paper we primarily establish the new genus *Cerchysiopsis*, which comprises the species *C. confusus* n. sp. and *C. birói* Erd., further we give a redescription of *Agromyzæphagus detrimentosus* Gah. and contributions to the taxonomy of the genus *Hungariella* Erd., and present our views on the systematic position of the two genera. In the following part of our work we discuss the question of the affinity of some Central European species with quadridentate mandibles, related to the type of the genus *Ixodiphagus* How. The genus *Eupæcilopoda* Nov. & Hffr. (genotype: *Isodromus perpunctatus* Masi) has so far not been described but its name was first used with the total figure of the genotype in "*Ochrana přírody*" in 1953. We give here its diagnosis and comparison with the related genera of the tribe Homalotylini. The systematic part is concluded by a reprint of the original description of *Boučekiella depressa* Hffr., published in "*Ochrana přírody*" 1954, and by a brief summary of the encyrtidological investigations of Phragmiteta on our territory. The synonymic and critical notes referring

¹⁾ 11. předběžná práce k monografickému zpracování čs. Encyrtidů — Eleventh preliminary paper to the monographic investigation of the Czechoslovak Encyrtidae.

to the Central European species of the family or to forms having a certain relation to them, are an independent part of the work. The plates following the text show also several classical localities of species described herein and in previous papers.

Genus *Cerchysiopsis* nov.

The type of this genus is a species very closely related to the female of the species *Tricladia birói* Erd. except for the wing venation which is considerably different from that described and figured by the author of the afore-named species. In view of their otherwise identical morphological structure it is necessary to regard the two species as congeneric.

I am not quite convinced of the justification of associating the male which has three lateral branches in its antennae with the above mentioned female, as Erdős does in describing his species *Tricladia birói*. On the other hand, however, I am not able to confute this conception by evident arguments and shall therefore refrain from discussing the question of the males at present. I am taking up herein only a critical attitude as regards the female sex.

Considering that Erdős placed his female in the genus *Tricladia* Merc., it is necessary to compare both of the Central European species with the type of this genus. The differences between the female of *Tricladia humilis* Merc. and the females of the two Central European species prove to be so essential that in no case is it possible to regard these forms as congeneric. Hence I delimit the distinct genus *Cerchysiopsis* n. for the reception of Erdős's species and the new species from Czechoslovakia; the difference between the species of this genus and the type of the genus *Tricladia* Merc. are evident from the following table of comparisons:

<i>Tricladia humilis</i> Merc.	<i>Cerchysiopsis confusus</i> n. sp. and <i>C. birói</i> Erd. comb. nov.
Mandibles bidentate.	Mandibles with one tooth and a broad, flat, rather low tubercle.
Funicle segments rather more prolonged.	All funicle segments quadrate.
Clava much shorter than funicle (as long as 3 preceding segments combined), of the same width, solid.	Clava robust, almost as long as entire funicle, 3-segmented.
Eyes very small.	Eyes large.
Head broadly elliptic, thorax almost quadrate.	Head hemispherical, thorax prolonged.
Scutellum large, only moderately arched.	Scutellum smaller, relatively rather narrow, arched.
Marginal vein quadrate.	Marginal vein more or less elongated.

Should the linking of the male having the first three funicle segments lengthened into long lateral branches with the female of the Hungarian species of the new genus *Cerchysiopsis* prove to be correct, the seeming

resemblance between the males of both genera, with the antennae ramified in the same manner, would not be conclusive. The males of other genera with ramose antennae are in some cases also very similar in appearance, and the bearers of the generic characters are in the main the females.

Hence it follows that both the species *birói* Erd. and the below described new species *confusus* n. must be placed in a common individual genus. This genus resembles to a considerable extent the genus *Cerchysius* Westw., but its coloration is non-metallic, the funicle segments are shorter, the pedicel comparatively long, the clava of a very peculiar shape; in the stated particulars it differs also from the genus *Copidosoma* which it recalls in sculpture and habit. Nevertheless, it clearly falls within the affinity of the genus *Cerchysius* Westw., whereas Mercet's genus *Tricladia* is without doubt closely related to the group of the genus *Tetracladia* How.

This genus also appears to be rather closely related to the Australian genus *Cerchysiella* Gir., from which it differs, however, in having mandibles of a different shape, the absence of a very short ring-joint, the specific shape of the stigmal vein, and the considerably protruded ovipositor.

Female.

Head hemispherical, distinctly broader than the thorax, posterior margin very slightly defined (nearly rounded). Vertex and frons about as wide as the eyes, almost flat; posterior ocelli somewhat nearer to the inner orbits than to the posterior margin of the head. Eyes large, nearly circular. Temples not developed. Cheeks shorter than the transverse diameter of the eyes. Facial area moderately excavated, antennae inserted at the very oral margin. Mandibles with outer, not very sharp tooth, and with a broad, flat tubercle, occupying a space equal to the width of two normal teeth. Scape rather long, very slightly depressed from the sides; pedicel piriform, much longer than the following segment; funicle composed of six segments which are subquadrate, the first of them being markedly narrower than the pedicel, the following ones moderately broadening towards the tip of the antenna; clava almost as long as the funicle, distinctly exceeding the preceding segment in width, ovoid, triarticulate; the last segment of the clava with a narrow dish-like cavity along the whole of its length.

Thorax prolonged, pronotum relatively rather short; mesoscutum moderately transverse without parapsidal furrows; scutellum triangular and rather narrow, arched, in its posterior part elevated; propodeum short, with posticolateral corners slightly rounded. Wings well developed, narrow; marginal vein thick, elongated; stigmal relatively short, in the distal half triangularly broadened; postmarginal thick and of varying length (in the genotype exceeding in length the two preceding veins); pubescence of disc very short; linea calva complete; marginal ciliation not very long. Legs rather short but slender; mesobasitarsus as long as or perceptibly longer than the corresponding spur.

Abdomen (not counting the ovipositor) about equal in length to the thorax; at the base of the same width, narrowing to a sharp point; the first

three segments parallel, the following ones having the latera shifted forward; pygostyli in about half the length of the abdomen. Ovipositor prominently protruded.

Male.

If Erdős's conception is correct, then the male sex of this genus is characterized first of all by the three basal funicle segments prolonged into lateral branches; in contrast to the genus *Tricladia* Merc., the third funicle segment is much longer than the pedicel, about as long as the fifth.

Genotype: *Cerchysiopsis confusus* n. sp.

Biology: Unknown.

Geographical distribution: Czechoslovakia, Hungary.

Key to the species of the genus *Cerchysiopsis* n. (females)

Marginal vein longer than stigmal, postmarginal the shortest; frons somewhat broader than eyes; mesotibial spur as long as metatarsus *birói* Erdős.

Marginal and stigmal veins equal in length, postmarginal longer than the two preceding ones; frons as broad as eyes; mesotibial spur almost only half the length of the metatarsus *confusus* n. sp.

Cerchysiopsis confusus n. sp.

Female.

Size: 1.75—1.82 mm.

Head and thorax deep black, lustrous, only the scutellum with very faint bronzy reflexes. Entire antennae blackish brown. Wings on their whole surface slightly brown smoky, with a small darker spot in immediate vicinity to the marginal vein. Legs yellowish brown; the tibiae and tarsi of a lighter colour than the femora. Abdomen blackish brown; ovipositor black, at the very tip yellowish.

Head in dorsal view about twice as broad as long, exceeding by one fifth of its width the broadest part of the thorax. Frons equal in breadth to the eyes. Ocelli in an equilateral triangle, the posterior ones being separated from the inner orbits by a space almost imperceptibly greater than their own diameter, from the posterior margin of the head again by a space one half greater. Cheeks shorter than the transverse diameter of an eye. Scape somewhat longer than double the length of the pedicel, very slightly flattened from the sides; pedicel twice as long as broad at the end; first funicle segment quadrate, perceptibly narrower than the pedicel and hardly half its length; the following segments slightly increasing in size in the direction of the end of the antenna, subquadrate; clava almost as long as the entire funicle, 3-segmented, unlike the preceding segments robust, broadest in its middle part, blunt-pointed at the end; the last segment of the clava having a dish-like impression on the inner side, along its entire length.

Pronotum short, strongly convergent. Mesonotum one third broader than long. Scutellum somewhat shorter than mesoscutum, having approximately

the shape of an equilateral triangle, posteriorly rather broadly rounded, axillae short. Propodeum short, with right-angled, rounded posticolateral corners. Forewings by one third of their length projecting beyond the apex of the abdomen, and by but a barely perceptible part the tip of the ovipositor; wing venation but slightly reaching out beyond half the length of the anterior margin; submarginal vein in basal two thirds slender, in distal third twice as thick, at the end shortly interrupted; marginal thick, one and a half times longer than wide; stigmal at least of the same length, in the distal part becoming one half broader than the basal part of the vein; postmarginal somewhat longer than stigmal, in the basal part as wide as the marginal, gradually tapering off; cellula costalis narrow, lamellate; linea calva running down the entire width of the wing and joining the almost hairless part. Submarginal vein of the posterior wings only very slightly curved, as long as marginal; pubescence of disc rather short and sparse, marginal ciliation a little longer than in forewings. Mid metatarsus four times as long as wide; the corresponding spur but slightly longer than half its length; hind femora somewhat broadened.

Abdomen of the same length as thorax, with the pygostyli shifted to half its length. Exserted part of ovipositor about equal to half the length of abdomen.

Male: Unknown.²⁾

Biology: Unknown.

Geographical distribution: Czechoslovakia.

Localities in Czechoslovakia:

Moravia merid.: Pavlovské kopce (steppe on limestone): Klausen, 15. VIII. 1956, 1 ♀ (paratype); do.: Děvín, 2. VII. 1952, 1 ♀ (holotype). Lgt. et coll. Hoffer.

Genus *Agromyzæphagus* Gahan

Agromyzæphagus Gahan: *Proc. Ent. Soc. Wash.*, 14: 6, 1912.

Agromyzæphagus Mercet: *EOS* 2: 317—318, 1926.

Agromyzæphagus Ferrière: *Mitt. Schweiz. Entom. Ges.*, 26: 22, 32, 34, 1953.

Agromyzæphagus Erdös & Novicky: *Beitr. Entom.*, 5: 184, 194, 1955.

The genus was established by Gahan in 1912, after the type species *A. detrimentosus* Gah., ascertained in North America, which is so far its only known representative. Mercet in 1921 described the same species again under the name of *Bothriothorax distinctus* Merc., his description being based on Spanish specimens; later he ascertained the identity of his species with the type of the genus *Agromyzæphagus* Gah., which he corrected

²⁾ On the territory of Czechoslovakia were ascertained two males belonging to a species very closely related to the male Erdös attaches to the species *Tricladia birói* Erd. In view of the fact that we are not able to settle satisfactorily the mutual specific relationship of the two sexes, I refrain at present from dealing with these males. Besides, they were found at different localities than our above mentioned females belonging to the genus *Cerchysiopsis*.

in 1926. Erdős in 1957 reported the occurrence of this species in a single locality in Hungary.

In Czechoslovakia this species has been found in two localities in the České Středohoří. As a result of these finds I am able to give a fuller re-description of the genus and species. Our specimens differ from those of Mercet in details (especially in their somewhat longer funicle segments), yet these differences appear to be too minute to attach any greater taxonomic importance to them. Nevertheless, we give here a detailed description and figures of the antennae and wings according to our specimens.

Female.

Head large, broader than the thorax, arched. Vertex and frons much broader than the width of the eyes. Occiput sharply defined. Eyes not very large, very shortly oval, almost bare. Temples not developed, cheeks long. Ocelli large, arranged in a slightly obtuse-angled triangle; the posterior ones nearer to the inner orbits than is their distance from the posterior margin of the head. Facial area distinctly excavated. Mandibles with 3 sub-obtuse teeth, the middle one being the longest. Antennae inserted below a line drawn between the lower corners of the eyes, near to the oral margin. Scape long, rather slender, cylindrical; pedicel moderately elongated; funicle 6-segmented, the segments being about equal in width and slightly prolonged; the first fully as wide as and almost as long as the pedicel; clava distinctly triarticulate, robust, perceptibly broader than the funicle, somewhat longer than the three preceding segments combined. Vertex and frons densely granular, with sparse, scattered, flat punctures. Pubescence of entire head short, sparse and white; funicle covered with rather dark, dense, and not very short hairs.

Thorax strongly arched; pronotum very short, lamellate; mesoscutum well developed, parapsidal furrows absent; scutellum triangular, strongly arched and prominently elevated, posteriorly rounded, with axillae very short, their tips barely meeting; propodeum short, with posticolateral corners rounded. Wings large and wide, hyaline, with white, very short and fine pubescence; marginal ciliation of forewings not at all developed. Submarginal vein almost straight, in the distal third somewhat thickened; cellula costalis rather broad; marginal vein very thick, moderately prolonged; stigmal rather short, straight; postmarginal very short. Posterior wings with very short marginal ciliation, cellula costalis developed. Legs of normal length and width, with the exception of the hind femora, which are markedly thickened; mid metatarsus very long, the corresponding tibial spur a little shorter. Sculpture of the thorax of a dense and rather deeply impressed punctulate-reticulate character, with scattered, rather deep punctures bearing light hairs.

Abdomen shorter than thorax, in the basal two thirds parallel; the distal third of a triangular shape. Ovipositor not protruded. Sculpture almost smooth; all abdominal segments bordered by a row of rather long, sparse, light, hairs.

Coloration of the greater part of the body metallic.

Male: Unknown to me (see Mercet's redescription of 1926!).

Biology: Entoparasite of chrysalids of Diptera of the genus *Leucopis*.

Geographical distribution: North America; Europe: Spain, Hungary, Czechoslovakia.

Systematic position: This genus belongs to the tribe Microteryni, subtribe Metaprionomitii. The most characteristic features in which it is distinguished from the related genera, are as follows: Large head with relatively broad frons and comparatively small eyes, long cheeks, wide funicle segments, robust clava, and hyaline wings (with white, almost imperceptible pubescence), without marginal ciliation. In the structure of funicle segments it most resembles the genus *Subprionomitus* Merc., from which it differs, however, in its broader habit, the larger head with the posterior margin sharply defined, the shorter marginal and the longer stigmal veins, the complete absence of marginal ciliation in forewings, and the characteristic pubescence of the disc.

Therefore the genus *Agromyzaephagus* Gah. cannot be regarded as closely related to the genus *Bothriothorax* Ratzb., or to *Cænocercus* Thoms. (tribe Bothriothoracini), where it has been placed up to now by most authors.

Agromyzaephagus detrimentosus Gahan

Agromyzaephagus detrimentosus Gahan: *Proc. Ent. Soc. Wash.*, 14: 7, 1912.

Bothriothorax distinctus Mercet: *Fauna Ibérica Encicrtidos*, p. 714, 1921.

Agromyzaephagus detrimentosus Mercet: *EOS*, 2: 319, 1926.

Bothriothorax distinctus Nikolskaja: *Chalcidy fauny SSSR*, p. 441, 1953.

Female.

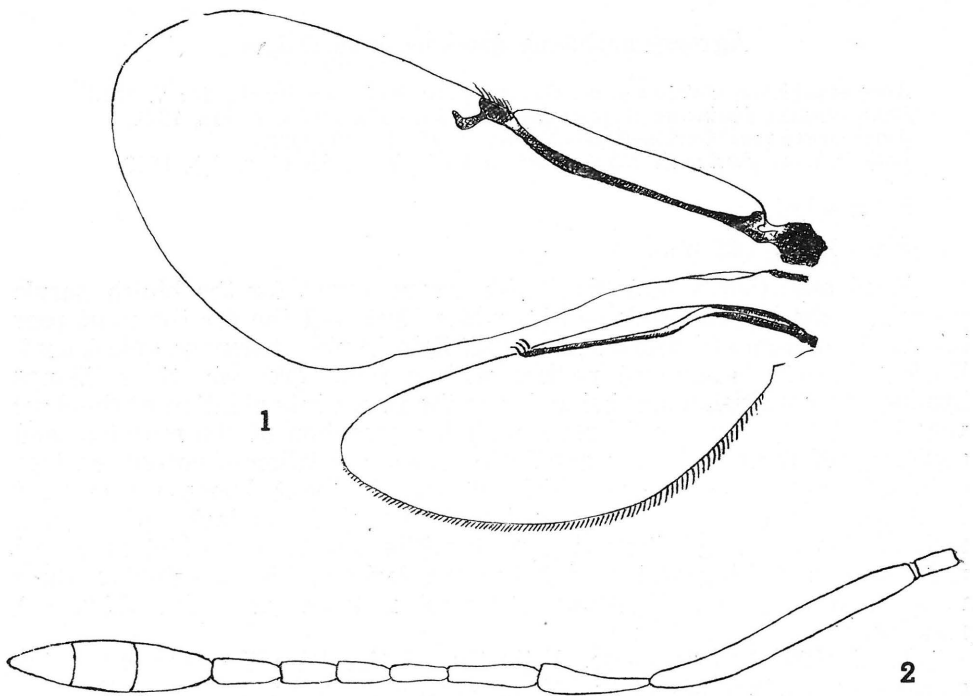
Size: 1.65—1.69 mm.

Head and thorax metallic bluish green except for the bluish purple pronotum, the brown tegulae (with white tips) and the for the most part brown metanotum and propodeum. Ocelli light brown. Antennae unicoloured, blackish brown; scape and pedicel with a faint greenish tinge. Wings hyaline, their whitish shade being due to the fine, white ciliation of the disc; venation of forewings light brown with the exception of the marginal and postmarginal veins which are of a darker colour; venation of posterior wings quite colourless. Fore legs blackish brown with light knees, rather light distal parts of tibiae and basal tarsal segments; mid legs dark, with a faint metallic lustre, except for the greyish white knees, the tibial spur and three basal tarsal segments; hind legs the darkest, with the lighter parts reduced. Abdomen blackish brown with weak metallic (greenish and bronzy) reflexes.

Head strongly transverse, distinctly broader than the thorax. Vertex and frons more than one and a half times as wide as the transverse diameter of an eye, viewed from above. Ocelli forming a slightly obtuse-angled triangle; the posterior ones separated from the posterior margin of the head by a distance equal to their diameter, from the inner orbits again by half

that distance. Eyes nearly circular in outline. Cheeks about as long as the greater diameter of an eye. Temples not developed. Antennae inserted near to the oral margin; scape approximately as long as the width of the vertex, lamellate, very moderately curved; pedicel three and a half times shorter than the scape, nearly twice as long as it is broad at the end; first funicle segment of the same width and length as the pedicel, almost twice as long as wide; the following segment one third shorter; the remaining four segments of almost equal length, moderately prolonged, the last two imperceptibly wider than the preceding ones; clava broad, bluntly truncate at the end part, a little longer than the three preceding segments combined, but almost twice as wide.

Pronotum of the shape of a very narrow lamella. Robust, arched mesoscutum one and three fourths times wider than long. Scutellum of the same length, very arched, shaped like a slightly prolonged triangle, rounded off at the end; axillæ very short. Posticolateral corners shifted somewhat forward, covered with long white hairs. Submarginal vein but very slightly bent at the end, with a row of rather long, thin, dark bristles, narrowly interrupted at the end; marginal very wide, one and a half times as long as



1. Wings of *Agromyzæphagus detrimentosus* Gah. 2. Antenna of female of *Hungariella piceæ* Erd.

wide, with numerous dark hairs; postmarginal attaining barely half the length of the marginal; stigmal about as long as the marginal, uniformly wide, straight, with a beak-like projection at the end. Mid metatarsus five times as long as broad; tibial spur attaining three fourths of the metatarsus.

Abdomen as long as two thirds of the thorax, distinctly narrower than the latter. First abdominal tergite not very long, the following four segments parallel; pygostyli situated at the end of the second third of the length of the abdomen.

Male: Unknown to me.

Biology: The American specimens parasitized in all probability on the species *Leucopis nigricornis* (according to Gahan).

Geographical distribution: Ut supra.

Localities in Czechoslovakia:

Bohemia sept.: The hill "Hoblík" near Louny (České Středoohoří) (steppe on basalt), 16. VI. 1957, 1 ♀; the hill "Hazmburk" near Libochovice (ditto), 10. VI. 1943, 1 ♀. Lgt. et coll. Hoffer.

Genus *Hungariella* Erdős

Tetracnemus Timberlake: *Univ. Calif. Publ. Entom.*, 5: 5—11, 1929. Comb. nov.

Tetracnemus Compere & Smith: *Hilgardia*, 6: 601—605, 1932.

Tetracnemus Clancy: *Univ. Calif. Publ. Entom.*, 6: 231—248, 1934.

Tetracnemus Compere: *Univ. Calif. Publ. Entom.*, 7: 59, 1939. Comb. nov.

Hungariella Erdős: *Ann. Hist.-Nat. Mus. Nat. Hung.*, 39: 144—145, 1945.

Tetracnemus Kryger: *Ent. Medd.*, 26: 116—119, 1950. Comb. nov.

Tetracnemus Nikolskaja: *Chalcidy fauny SSSR*, p. 433, 1953.

Tetracnemus Ferrière: *Mitt. Schweiz. Entom. Ges.*, 26: 11, 26, 1953.

Hungariella Erdős & Novicky: *Beitr. Entom.*, 5: 170, 186, 1955.

This genus, established by Erdős in 1946 on the basis of taxonomic evaluation of both sexes of the genotype *H. piceæ* Erd., is accepted at the present time as rather doubtful. This is due to the fact that so far we lack a clear idea about the genus *Tetracnemus* Westw., which is regarded by a great majority of contemporary authors as being identical with the later genus of Erdős, mentioned above. When comparing Westwood's original diagnosis with the genotype of *Hungariella* Erd., however, the following differences become apparent:

Genus *Tetracnemus* Westw.: The lateral four branches of the funicle gradually become greatly shortened in the direction of the end of the antenna, the first one being almost twice as long as the fourth. Antennae with very short hairs. Marginal vein long.

(Genus *Hungariella* Erd.: All four lateral branches are nearly of the same length with the exception of the first, which is somewhat shorter than the following ones. Antennae with long hairs. Marginal vein only slightly extended.

The situation became more complicated when in 1951 Kryger designated the neotype of *Tetracnemus diversicornis* Westw. with a supple-

mentary redescription; this author, however, substituted for the lost type of Westwood a specimen evidently identical with the type of the later genus *Hungariella* Erd. This solution was in accordance with the views of a number of other authors who had placed several exotic species, congeneric with Erdős's genotype of *Hungariella*, in the genus *Tetracnemus* Westw. A similar error was made in 1923 by Ruschka, who designated as type of the genus *Tetracnemus* the species *Charitopus fulviventris* Först.

A very probable theory about the genus *Tetracnemus* Westw. is put forward by Mercet (1921), who believes Westwood to have simply missed the first funicle segment which in males of the genus *Tetracladia* How. (and also *Charitopus* Först.!) is very small and but barely perceptible. He therefore recommends the annulment of Westwood's name which is based on an incorrect diagnosis, moreover in the absence of the corresponding type specimen. This conception seems to be very acceptable to me, for the figure of the antenna of the genus *Tetracnemus* as given by Westwood, very strikingly resembles the two mentioned genera (except for the lack of the first funicle segment, as already noted); this conception is greatly supported also by the fact that common representatives of both genera are relatively very abundant as compared with the far rarer genera with ramified antennae in the male sex, possessing a 5-segmented funicle. Unfortunately, according to existing nomenclatorial rules it is at present hard to annul a name to which is related a certain diagnosis, accompanied, moreover, by a figure. The difficult situation was unexpectedly simplified by Erdős's information of 1957 (in his "Enumeratio...") on the find of a male in Hungary, which is a true representative of the genus *Tetracnemus* in Westwood's conception. This find is of considerable significance as regards the validity of this genus. I feel sure it would be appropriate to describe this form in detail, even though Erdős expresses certain doubts as to its specific identity.

Under the circumstances we must regard the above specimen as the only existing representative of the genus *Tetracnemus* Westw. The well known and from the economic point of view highly important species *pretiosus* Timb. and *peregrinus* Comp. from the neotropical, æthiopian, oriental and australian regions, introduced also into North America, which have been hitherto placed in the genus *Tetracnemus* Westw., must therefore belong to the genus *Hungariella* Erd.³⁾

Timberlake 1929 points out a certain similarity of the female of the genus *Tetracnemus* in his conception (*Hungariella* Erd.) to Girault's

³⁾ The genus *Tetracnemus* was often incorrectly interpreted also by earlier authors. Thus Mayr 1785 based his description on a specimen obviously belonging to the genus *Tricnemus*. Howard 1892 characterized his *Tetracnemus* as a species having 10-segmented antennae and widely separated scapulae; this form, which this author established as the leading type of his unnatural tribe "*Tetracnemini*", very probably does not belong to the family Encyrtidae at all. Ashmead 1904 and Schmiedeknecht 1906 as well describe under the name *Tetracnemus* a form which has nothing in common with Westwood's genus. Ruschka 1921 considers *Tetracnemus* as identical with *Charitopus*, and Kryger 1951, as already noted, gives a supplementary diagnosis based on the neotype from Finland, which is clearly congeneric with Erdős's species *Hungariella piceæ*. Most recently also Ferrière 1953 places the genus *Hungariella* in synonymy with *Tetracnemus*.

genus *Arhopoideus* (1915). Certain discrepancies, however, and particularly the fact that the male of Girault's genus is unknown, exclude the justification of placing the two genera in synonymy. Should the discovery of the male of *Arhopoideus* Gir., however, subsequently prove the two genera to be identical, then Erdős's name would have to yield to the earlier denomination *Arhopoideus* Gir.

Systematic position: Until recently only the male of the type of the genus *Hungariella* Erd. had been known to us. By later studies of the female, however, we have come to the conclusion that the classifications made hitherto were incorrect. The structure of the body, sculpture and character of the female antennae are identical with those of the genus *Copidosoma* Ratzb.; and therefore this genus must be placed in the tribe *Copidosomini*. The ramification of the segments of the male antennae is not an important phylogenetic character which would justify the linking of two so far removed genera in the unnatural group "*Tetracnemini*", as has so often been done. On the contrary, this character is common to a number of representatives of various tribes of the family, but we cannot consider it a conclusive clue in the solution of the phylogenetic questions of this group.

Hungariella piceae Erdős

Hungariella piceae Erdős: *Ann. Hist.-Nat. Mus. Nat. Hung.*, 39: 145—147, 1946.

Tetracnemus diversicornis Kryger: *Ent. Medd.*, 26: 119—121, 1950. Comb. nov.

Geographical distribution: Finland, Hungary, Czechoslovakia, U.S.S.R.

Localities in Czechoslovakia:

Bohemia sept.: Šumava: Horní Sněžná (mountain region, 1200 m.), 23. VII. 1946, 1 ♂. Moravia occid.: Javoříce (mountain region, 700—800 m.), 7. VIII. 1944, 2 ♀♀. Slovakia merid.: Stúrovo (steppe on loess near Belá), 16. VI. 1947, 1 ♂; Kováčov (steppe on andesite), 7. V. 1949, 1 ♂. Slovakia bor.: Vysoké Tatry: Kežmarské Žleby (mountain region, 700 m.), 7. IX. 1957, 3 ♀♀.

Biology: According to Sugonjaev (1958), a parasite of the fir scale *Paroudablis piceae* Löw.

Genus *Ixodiphagus* Howard

Ixodiphagus Howard: *Ent. News*, 18: 275—379, 1907.

Ixodiphagus Gahan: *Proc. Ent. Soc. Wash.*, 36: 91—93, 1934.

Ixodiphagus Nikolskaja: *Parasit. Sborn. Zool. Inst. AN SSSR*, 12: 272—273, 1950.

Ixodiphagus Nikolskaja: *Chalcidy fauny SSSR*, p. 388—390, 1953.

Ixodiphagus Erdős: *Ann. Hist.-Nat. Hung.*, 7: 193, 1956.

Ixodiphagus Erdős & Novicky: *Beitr. Entom.*, 5: 183, 194, 1956.

In 1907 Howard described an interesting new genus and species of the family Encyrtidae from Texas, bred from the tick *Hæmaphysalis leporis-palustris*, under the denomination *Ixodiphagus texanus*; for long no further species belonging to the same genus was found. Only in 1950 Nikolskaja

described a new species from Primorje (U.S.S.R.), bred also from a tick (*Ixodes persulcatus* P. Sch.) under the name *Ixodiphagus hirtus*. In 1956 Erdős described the first species of the genus from Europe (Hungary) after specimens collected by L. Biró in nature, therefore without any knowledge of its biology. This species, which he calls *I. birói* Erd., has not only a number of substantial generic characters in common with the genotype *I. texanus* How., but also several considerably specific characters.

The question of the final position of this species, as well as the position of two further species from Czechoslovakia discussed below, however, remains open, as we have not yet had the possibility of studying the type material in reference to the genus *Ixodiphagus* How.

In Czechoslovakia there have been ascertained two species, the first of which falls within the closest affinity of the species *I. birói* Erd. with which it forms a well-defined specific group. The other species, which Kurdjumov described under the name of *Encyrtus breviventris* was reared in a great number of specimens of both sexes from the scale-insect *Greenisca placida* Newst. from a locality in Central Bohemia. This species is morphologically to a certain extent different from *I. birói* Erd. and *I. semiluniger* n. sp., but it agrees with them entirely in the characteristic type of venation and in the similar structure of the head, antennæ and mandibles.

The complex of species which I provisionally include in the genus *Ixodiphagus* How., may be divided into three independent specific groups, which we may define as follows:

The first group, represented by the species *I. texanus* How. (to which belongs also *I. hirtus* Nik.), may be characterized thus: Mandibles with well-defined outer tooth and wide, flat, inner tubercle, maxillary palpi 4-jointed, labial palpi 3-jointed, antennal clava truncate, venation of forewing in its characteristic part not particularly developed, postmarginal vein very short, abdomen normal. Parasitic on mites of the family Ixodidae. (Group of the species *I. texanus* How.).

The European species, on the other hand, distinctly show four mandibular teeth, 3-jointed maxillary and 2-jointed labial palpi, the antennal clava ovoid, the submarginal vein in the distal fourth usually greatly broadened with a slight trace of a regressive vein; the following veins especially robust, the postmarginal being of the same length as the stigmal (inclusive of the oblique beak pointing towards the anterior edge of the forewing). Abdomen always relatively small and short. As far as their biology is known, they parasitize on scale-insects (Coccodea).

The stated complex of European species is again divided into two natural groups. The first group is represented by the species *I. breviventris* Kurdj. It may be characterized by its compact frontal part and uniformly smoky forewings.

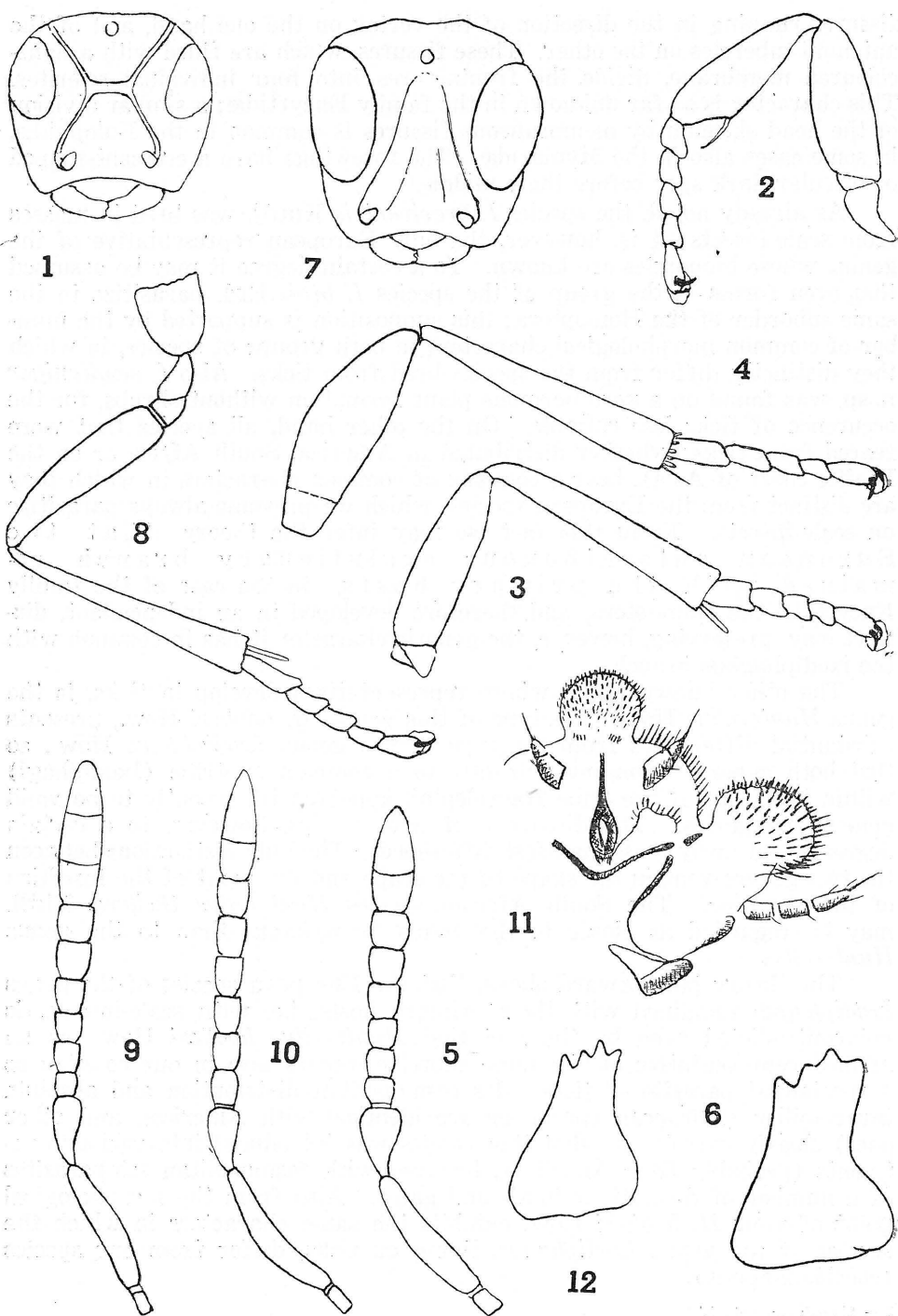
The group of the species *I. birói* Erd., where belongs also the species *I. semiluniger* n. sp., is, on the other hand, clearly characterized by the frontal area of the head being divided by a short transverse fissure at the level of the centre of the eyes. At its ends originate narrower, divergent

fissures running in the direction of the vertex on the one hand, and of the antennal tubercles on the other. These fissures, which are filled with a light-coloured membrane, divide the frontal area into four individual sclerites. This character is so far unknown in the family Encyrtidæ; a similar division of the head skeleton by membranous fissures is common in the Eulophidæ, in some cases also in the Mymaridæ. The forewings have a crescent-shaped or circular dark spot before their middle.

As already noted, the species *I. breviventris* Kurdj. was bred in masses from scale-insects; it is, however, the only European representative of the genus, whose bionomics are known. To a certain degree it may be assumed that even forms of the group of the species *I. birói* Erd. parasitize in the same suborder of the Homoptera; this supposition is supported by the number of common morphological characters in both groups of species, in which they distinctly differ from the species bred from ticks. Also *I. semiluniger* n. sp. was found on a xerothermous plant formation without shrubs, for the occurrence of ticks less suitable. On the other hand, all species that were reared from ticks (whether distributed in America, South Africa or on the Pacific coast of Asia), bear a complex of common characters in which they are distinct from the European species, which we presume always parasitize on scale-insects. From this fact we may infer the theory that the European autochthonous evolutionary branch remained with the primary hosts, in the case of the family Encyrtidæ the Homoptera, and therefore developed in an independent, distinct way, preserving, however, the generic character it has in common with the ixodiphagous branch.

The other known genus whose representatives develop in ticks, is the genus *Hunterellus* How. The type of this genus, *H. hookeri* How., presents substantial differences from the type of the genus *Ixodiphagus* How., so that both genera, belonging evidently to a common subtribe (Ixodiphagi) within the scope of the tribe Habrolepini, appeared till recently to be valid generic categories. The discovery of new species, however, to a certain degree swept away these manifest differences. The only distinctions between the two genera remain the shape of the scape and the point of the insertion of the antennæ. The South African species *Hunterellus theileræ* Fiedl. may be regarded as closer to the genus *Ixodiphagus* than to the genus *Hunterellus*.

The theory put forward above, that the European species of the genus *Ixodiphagus* remained with their primary hosts, i.e. with scale-insects, is not contradicted even by the fact that *Hunterellus hookeri* How., as an affined representative of the same subtribe, occurs also in our country as a specialized parasite of ticks. Its cosmopolitan distribution and absolute invariability (European specimens are identical with American and other ones) clearly corroborate that this species was introduced into various continents (probably from America), together with cosmopolitan ectoparasites of a number of domestic animals and game. Also from the morphological point of view *H. hookeri* How. exhibits the same characters in which the species of the genus *Ixodiphagus*, living on ticks, differ from our species (coccidiphagous).



Key to the identification of world species of *Ixodiphagus* Howard

- 1 Clava truncate. Mandibles with outer, well-defined tooth and inner, wide, flat tubercle. Maxillar palpi 4-jointed, labial 3-jointed. Venation not too developed; postmarginal vein much shorter than stigmal. Abdomen of normal size. Parasites of mites of the family Ixodidae (Group of species *I. texanus* How.) 2
- Clava ovoid. Mandibles distinctly 4-toothed. Maxillar palpi 3-jointed, labial 2-jointed. Characteristic part of venation richly developed; postmarginal vein as long as stigmal, with the beak directed to anterior edge of wing. Abdomen relatively small. As far as biology is known, parasites of scale-insects 3
- 2 Small species (0.8 mm.). Body surface black, lustrous. Funicle segments \pm quadrate; scape of the same length as pedicel with three following joints of funicle combined *texanus* Howard.
- Large species (1.9—2.2 mm.). Body surface black with bronzy lustre. Funicle segments distinctly prolonged, scape of the same length as pedicel with basal 1.5 segments combined *hirtus* Nikolskaja.
- 3 Head distinctly narrower than thorax; frons divided by transverse membranous light fissure and by further diverging pairs of fissures, running from its ends in the direction of posterior ocelli and antennal tubercles (see fig. B, 1). Scutellum broader than long, posteriorly widely rounded. Forewings with crescent-shaped or circular darker spot in basal half (Group of species *I. birói* Erd.) 4
- Frons not divided by membranous fissures. Scutellum distinctly longer than wide, posteriorly narrowly rounded. Forewings without roundish spots in basal half *breviventris* Kurdjumov.
- 4 Parapsidal furrows developed. Basal half of wing with circular spot. Mid tibial spur minute. Clava in males solid⁴⁾ *birói* Erdős.
- Parapsidal furrows lacking. Basal half of wing with crescent-shaped spot. Spur of mid tibiae only a little shorter than corresponding metatarsus. Clava in males distinctly two-jointed *semiluniger* n. sp.

Ixodiphagus semiluniger n. sp.

Male.

Size: 0.83 mm.

Head dark brown, as are also the pronotum, mesoscutum and scutellum, with a bronzy lustre. Metanotum, propodeum and pleural parts lighter, abdomen pitch black. Mandibles reddish brown. Eyes black, ocelli reddish brown. Frontal membranous fissures light. Antennæ light brown, unicoloured, only the scape and pedicel somewhat lighter than the remaining part of the antenna. Wings yellowish brown smoky with a darker indefinite spot in close proximity to the marginal vein and a crescent-shaped transverse stripe in the distal part of the first third of the disc; venation light brown.

⁴⁾ Division of clava in exsiccate specimens very indistinct; this circumstance does not exclude the possibility of overlooking this character in *I. birói* Erd.; this omission seems very probable, as all hitherto known species of this genus have a two-jointed clava in males.

1.—6. *Ixodiphagus semiluniger* n. sp. ♂. 1. Head from in front. 2. Fore leg. 3. Mid leg. 4. Hind leg. 5. Antenna. 6. Mandible. 7.—12. *Ixodiphagus breviventris* Kurdj. 7. Head from in front. 8. Mid leg. 9. Antenna of ♀. 10. Antenna of ♂. 11. Labiomaxillar complex. 12. Mandible.

Fore legs light yellowish brown, only the femora darker with the exception of the knee parts, tibiae with a transverse, narrow, very light stripe in the basal sixth. Coloration of mid legs similar to the preceding pair, but the tibiae in the middle part darker and the last tarsal segment darkest of all; hind legs of the same colour, the narrow light stripe in the basal part of the tibia being more clearly marked than in both preceding pairs.

Head distinctly narrower than thorax, in dorsal view semi-elliptic, in frontal view subhemispherical. Eyes very small, composed of a not very great number of ommatidia; their longitudinal diameter as long as the cheeks. Frons one and a half times wider than the transverse diameter of an eye as seen from above; facial area having a short transverse fissure in the line of the centre of the eyes; the upper diverging fissures running closely round the posterior ocelli, the lower ones round the antennal tubercles; triangular area between the lower fissures moderately elevated. Ocelli forming a strongly obtuse-angled triangle; the posterior ones separated from each other by a space somewhat greater than double their distance from the eyes. Mandibles distinctly 4-toothed and rather broad, the outer tooth being separated by a deeper incision than those separating the remaining teeth from one another; the third tooth is the highest, the fourth low, tubercle-shaped; all the teeth relatively short and blunt (at the end more or less rounded). Posterior margin of the head angularly defined. Scape cylindrical, a little longer than double the length of the pedicel; the latter one third longer than wide, and one third broader than the greatest width of the scape; the first funicle segment slightly transverse, distinctly narrower than the pedicel; the following two segments but very slightly broadening and lengthening, the remaining three segments quadrate, of the same shape and size, larger than the preceding segments; clava 2-segmented, somewhat longer than the preceding two funicle segments combined, of the same breadth, at the end bluntly pointed, not truncate; its basal segment half the length of the distal segment; segments of the flagellum covered with sparse, very fine and rather long, obliquely projecting hairs (which attain the length of the basal funicle segments).

Thorax a third longer than wide, but little arched. Pronotum very short, lamellate. Mesoscutum a third broader than long, without parapsidal furrows; tegulae short, rounded. Scutellum of the shape of a wider triangle with the posterior edge broadly rounded, a trifle wider at the base as compared with the length of the central line; axillae rather long, their tips touching. Propodeum extremely short; posticolateral corners rectangular, not sharp. Forewings not large, stiff, pubescence of the disc rather sparse and very short; also the basal area is sparsely pubescent, as well as the speculum which thereby becomes less distinct; marginal ciliation rather long, the longest cilia being as long as a seventh of the greatest width of the disc. Length of venation exceeds half the anterior edge of the wing; submarginal vein in the distal fourth greatly broadened with a trace of a regressive oblique vein, its entire length covered with very thick spines, at the end seemingly rather broadly interrupted; marginal vein robust, barely twice as long as wide; stigmal but a little longer, at the end greatly widened, protruding in a long, rather thick, obliquely upturned beak, thus giving the impression

of a bent vein; postmarginal as long as stigmal including the beak; marginal and postmarginal with a row of long, thick spines (the same as on the submarginal); cellula costalis rather narrow, lamellate. Posterior wings with longer marginal ciliation. Legs short, thick; fore pair with stouter femora and a rather wide tibia bearing a spur a half longer than the first very slightly prolonged tarsal joint; the following three joints almost as wide as long, the last one a half longer. Mid pair with cylindrical femora and short, thick tibiæ (at the end but little wider than in basal part) with a spur imperceptibly shorter than the metatarsus, which is only a third longer than broad; the following joints about as long as wide at the end, the last one somewhat longer and broader. Hind pair with the femora in the middle part distinctly widened, the tibiæ relatively rather broad, ending in two spurs of various lengths, the tarsal joints moderately elongated, the basal one being twice as long as wide.

Abdomen trapezoid in shape, distinctly narrower than the thorax, very short; its length equal to half that of the thorax. The first segment occupies a good third of the total length of the abdomen. Pygostyli advanced to almost half its margins.

Sculpture of the head and thorax very finely coriaceous, so that the surface is to a considerable degree lustrous. Pubescence poor, short, light.

Female: Unknown.

Biology: Unknown.

Geographical distribution: Czechoslovakia.

Localities in Czechoslovakia:

Bohemia merid.: Tábor (xerothermous small slopes near the village Horky), 7. VIII. 1952, 1 ♀ (Allotype). Lgt. et coll. Hoffer.

***Ixodiphagus breviventris* Kurdjumov**

Encyrtus breviventris Kurdjumov: *Rev. Russe Entom.*, 12: 333, 1912. Comb. nov.

Female.

Size: 0.50—1.15 mm.

Head, thorax and abdomen black. Antennæ light brown, centre of scape, pedicel and clava a little darker. Wings uniformly smoky with an almost imperceptibly darker and barely visible indefinite small spot below the stigmal vein and in the middle of the speculum; pubescence dark; venation light brown. Femora of all three pairs of legs dark, almost black, the knee parts light; tibiæ except for the light base somewhat darker in the following part, gradually becoming lighter towards the distal end; tarsi yellowish brown with the exception of the somewhat darker last segment, which bears black claws. The narrow whitish transverse bands in the basal fourth of the tibiæ are not developed in this species.

Head equal to thorax in breadth, of a quadrangular shape in frontal view, towards the lower edge slightly narrowed. Eyes oval, \pm twice as long

as the cheeks. Frons in dorsal view but little wider than the transverse diameter of an eye. Ocelli in a strongly obtuse-angled triangle; the posterior ones in immediate vicinity to the inner orbits and separated from the posterior edge of the head by a distance equal to their diameter (possibly a trifle greater). Frontal area of head skeleton without membranous fissures. Insertion of antennæ in close proximity to the oral margin. Anterior margin of the head moderately concave. Mandibles of the same type as in *I. semiluniger* except that they are somewhat narrower and the teeth sharper (more prolonged). Maxillary palpi 3-jointed, the third joint being as long as the preceding one but distinctly narrower; labial palpi 2-jointed, the terminal joint very small. Scape cylindrical, in the second half distinctly becoming narrower; pedicel at the end imperceptibly wider than half its length, a little shorter than half the scape and broader than the latter in the middle part; first funicle segment half the breadth of the pedicel, only very little longer than wide, the following segments progressively enlarging, subquadrate; clava almost as long as the four preceding segments combined; ovoid, distinctly triarticulate, somewhat wider in its middle part than the end of the funicle.

Thorax a good third longer than wide, only moderately arched. Pronotum very short, lamellate. Mesoscutum a half broader than long, without parapsidal furrows; tegulæ small, rounded. Scutellum triangular, of the same length as the mesoscutum, a little longer than wide, with the apex but narrowly rounded; axillæ of medium length, their tips touching. Propodeum short, with the posticolateral corners bluntly defined. Forewings of considerably variable width; in narrower wings the marginal ciliation is substantially longer (up to $\frac{1}{6}$ of the width of the disc), and conversely; disc of the wings with short and rather poor pubescence, basal parts and speculum being even more sparsely pubescent; submarginal vein more slender than in *I. semiluniger*, with shorter and not so thick spines, similarly as the marginal and postmarginal veins, in the distal fourth broadened in the same manner and with a trace of a regressive oblique vein; marginal thick, twice as long as wide; stigmal long, at the end not very conspicuously widened, protruding in an oblique but not very long beak pointing to the anterior margin of the wing; postmarginal almost as long as stigmal; cellula costalis rather narrow, lamellate. Legs in structure similar to the species *I. semiluniger*, but on the whole more slender (especially the tibiæ and tarsi); mid metatarsus twice as long as broad, the corresponding spur a little shorter.

Abdomen somewhat narrower than the thorax and half its length; the basal segment nearly half its length. Pygostyli shifted to the middle of its margins.

Sculpture of the head and thorax finely, densely coriaceous, with a dull lustre, the punctures rather indistinct. Pubescence very poor, fine and short. Abdomen lustrous.

Male.

Size: 0.52—0.95 mm.

In coloration and habit much like the female. Head as seen from in front more circular in outline, with the eyes as long as the cheeks, the frons

broader, the insertion of the antennæ farther from the anterior margin of the head. Antennæ but little longer than in female, with a relatively long and slender scape, the pedicel twice as long as wide and two and a half times shorter, and but little broader than the scape, with the funicle segments almost of the same breadth (the basal segment but imperceptibly narrower than the pedicel) and only slightly elongated, excepting the last one which is a third longer than wide; clava a little shorter than the last three funicle segments combined, at the base of the same width, distally narrowing to a point, biarticulate; pubescence of the flagellum poor, very fine, obliquely projecting, as long as the width of the basal segments. Wings relatively narrower and somewhat lighter than in the female, with the marginal ciliation a trifle longer. Legs more slender; spur of mid tibiæ as long as the metatarsus; tarsal segments slightly longer than in the female. Abdomen very short, distinctly narrower than the thorax.

Biology: The only hitherto known host is the scale-insect *Greenisca placida* Newst. (*Carex* sp.).

Geographical distribution: U.S.S.R., Czechoslovakia.

Localities in Czechoslovakia:

Bohemia centr.: Karlštejn (forest steppe on limestone), in 1957—1958 reared 43 ♀♀ and 65 ♂♂. The typical specimens of the ♂ and ♀ also come from here. Only a single specimen was found in nature (♀): Bohemia centr.: Nižbor near Beroun, 23. VI. 1957.

Note: The specimen from Nižbor is distinguished from the Karlštejn specimens by longer and thinner antennæ (all the funicle segments slightly elongated), a longer scutellum, a shorter and thicker stigmal vein, and a more lustrous sculpture, in which the minute punctures, bearing hairs, are more distinct. The differences noted above, however, in my opinion, are not of taxonomic importance. On the contrary, I think they are only deviations within the range of specific variability.

Genus *Eupoecilopoda* Novicky & Hoffer

Eupoecilopoda Novicky & Hoffer: *Ochr. přír.*, 8: 84, 1953, Fig. 1

Eupoecilopoda Erdős & Novicky: *Beitr. Entom.*, 5: 180, 1955.

Female.

Head at least as wide as thorax. Eyes large, oval, with parallel inner orbits. Frons of normal width; ocelli arranged in an equilateral triangle, the posterior ones being as far from the inner orbits as from the posterior margin of the head. Mandibles with three blunt teeth. Maxillary palpi 4-jointed, labial palpi 3-jointed. Temples very short, distinctly broadening towards the end, composed of a not very long, somewhat flat and widened scape, a rather long pedicel, a 6-segmented funicle (the segments near the base small, gradually enlarging, moderately transverse), and a clava distally enlarged, broadly obliquely truncate.

Mesoscutum with faintly defined parapsidal furrows. Scutellum triangular with rather wide axillæ, their tips meeting; the end pointed, strong-

ly elevated above the surface of the propodeum, beyond which it somewhat extends. Propodeum very short with blunt posticolateral corners. Forewings rather large, their termination somewhat pointed; median smoky spot of a shape similar to that of the genus *Isodromus*; speculum in its middle part strongly narrowing; marginal ciliation very short; cellula costalis wide; submarginal vein slender, at the end of the second third enlarged in a distinct triangle, with a plainly marked regressive vein; marginal punctiform; stigmal long, straight, at the end enlarged into a circular area and a very small sharp beak; postmarginal lacking. Posterior wings hyaline, with a wide cellula costalis, the marginal ciliation longer and the termination more distinctly pointed. Legs long, spur of mid pair almost the length of the metatarsus. Hind tibiae with one spur.

Abdomen very short, nearly triangular. Pygostyli advanced almost to half its length. Ovipositor slightly protruded.

Sculpture of the head very finely granulate, without deeper or larger punctures; thorax very finely coriaceous, with a dull lustre; abdomen nearly smooth. Pubescence very poor, fine.

Antennae and legs with conspicuous black and yellow stripes, the remaining part of the body for the major part more or less brownish, without a metallic lustre.

Male.

The diagnosis of the male sex will be published later. (The male of the genotype is, according to the information of Mr. S. Novicky, in the Berlin Museum.)

Genotype: *Isodromus perpunctatus* Masi.

Geographical distribution: Italy, Czechoslovakia, Germany.

Systematic position: This genus of the tribe Homalotylini is closely related to the genera *Isodromus* How., and *Homalotyloidea* Merc., differing from the former in having an enlarged scape, and from the latter in the presence of parapsidal furrows on the mesoscutum and in the tibial spur being of the same length as the metatarsus. Quite specific for this genus is the structure of the submarginal vein and a special type of distribution of colours.

Within this genus belongs only the genotype *Isodromus perpunctatus* Masi.

Biology: Parasite of *Chrysopa formosa* Brauer.

Localities in Czechoslovakia:

Moravia merid.: Dubňany (psammophile vegetation), 3. VII. 1942, 1 ♀; Slovakia orient.: Somotor (psammophile vegetation), 29. VI. 1950, 1 ♀. Lgt. et coll. A. Hoffer.

Boučekiella depressa Hoffer

Boučekiella Hoffer: *Ochr. přír.*, 9: 173, 1954.

Urotyndarichus Ferrière: *Bull. Soc. Ent. France*, 60: 9, 1955.

Boučekiella Erdős: *Allatt. Közlem.*, 45: 48, 1955.

Boučekiella Erdős & Novicky: *Beitr. Entom.*, 5: 181, 191, 1955.

Objevu tohoto zajímavého zástupce biocoenoty původních rákosíšť předcházel nález prvního Encyrtida, specialisovaného na týž biotop, jež se mi podařilo zjistit na rákosíšti v samé blízkosti rybníka „Velký Tisý“ (bažina zv. „Šatlava“) v jižních Čechách r. 1943. Popsal jsem jej teprve v r. 1953 pod názvem *Aquaencyrtus bohemicus* Hffr. n. g. n. sp. Naše exempláře rozhojněny byly r. 1956 o další dva ♂♂ a dvě ♀♀ z téže lokality. Pozdějším soustavným průzkumem rákosíšť u nás i mimo naše území se ukázalo, že tento druh je exponentem rákosových porostů chladnější jihočeské prahorní paroviny, neboť se nevyskytuje již v močálech našich teplých nížin, ani na jiných podobných stanovištích střední a jižní Evropy. Ačkoli bylo po něm soustavně pátráno též na jiných mokřadních biotopech jihočeských s hojným porostem *Phragmites*, jediným jeho nalezištěm zůstává dosud vzpomínutá již klasická lokalita, jejíž původní hustý rákosový porost nebyl nikdy požit ani jinak narušen. Proto je toto stanoviště (státní přírodní rezervace) dnes již jediným zachovaným zbytkem někdejších rozsáhlých močálů jihočeských, kde se dosud mohla zachovat jejich charakteristická fauna.

Nález tohoto nového rodu a druhu vyvolal zájem o podrobnější a soustavnější výzkum chalcidofauny rákosíšť, a to nejen u nás, nýbrž i v cizině. Tak r. 1953 objeven byl na jižním Slovensku další pozoruhodný nový rod a druh v okolí Nedeđu *Boučekiella depressa* Hffr. Současně v jižní Francii Ferrière a v Maďarsku Erdős na základě důkladného průzkumu rákosíšť přinesli řadu velmi důležitých objevů z nadčeledi Chalcidoidea, zejména však z čeledi Encyrtidae. Tak byl během jednoho roku znovu dvakrát popsán druh *Boučekiella depressa* Hffr. Dalšími neméně zajímavými objevy byly *Platencyrtus parkeri* Ferr. z francouzské Riviéry (téměř současně popsán i Erdősem z Maďarska pod názvem *Platyencyrtus essuriens* Erd. & Nov.), *Ioëssa crassicornis* Erd., *Cerchysius gigas* Erd. a některé nové druhy rodu *Xanthoencyrtus* Ashm., jež byly ne dosti odůvodněně zařazeny do samostatných rodů *Asitus* Erd., *Platyrhopus* Erd. a *Ferrièreus* Ghesq. Většina těchto nových forem byla objevena v Maďarsku; sledována byla i jejich biologie a zjištěno, že valná část těchto parazitů prodělává svůj vývoj v červci *Chaetococcus phragmitis* March., žijícím v paždí listů *Phragmites vulgaris* Trin.

Pozdějším průzkumem našich rákosíšť byl ze shora uvedených druhů u nás zjištěn především vysoce zajímavý zástupce rákosové fauny *Platencyrtus parkeri* Ferr., a to prozatím nikoliv v jižních oblastech státu (jak bychom v první řadě byli očekávali), nýbrž na původním, faunisticky neobyčejně bohatém a zajímavém *Phragmitetu* v okolí Břežňského rybníka u Doks. Nalezeno bylo celkem 8 exemplářů (2 ♂♂ 18. VI. 1958 a 3 ♂♂ a 1 ♀ 30. VIII. téhož roku; další 2 ♀♀ byly nalezeny tamtéž 19. VI. 1959; vesměs lgt. Hoffer); současně zjištěn byl na téže lokalitě i další velmi zajímavý druh, specialisovaný na rákosové porosty, *Cerchysius gigas* Erd. (3 ♀♀ 9. VIII. 1957, lgt. Bouček, 2 ♀♀ 18. VI. a 3 ♀♀ 30. VIII. 1958; lgt. Hoffer). Rovněž z jiných skupin Hymenopter byly zde nalezeny charakteristické phragmiticolní druhy, jako *Clytina giraudi* Erd., některé druhy rodu *Prosopis* a j.

Shora uvedenými nálezy phragmiticolních druhů Encyrtidů byly rozhojněny naše znalosti o této čeledi o řadu velmi pozoruhodných, oekologicky značně vyhraněných forem.

In recent years there has stepped into the foreground an interest in the chalcidological investigation of primordial *Phragmiteta*, chiefly of greater stretches of *Phragmites vulgaris* Trin., which, as has been proved, harbour a number of interesting, highly specialized forms.

The first Encyrtid, specialized in this habitat, was taken by the author in 1943; it was a discovery of the new genus and species *Aquaencyrtus bohemicus* Hffr., from a reed reservation not far from the pond "Velký Tisý" in South Bohemia. The description of this characteristic representative of

reed growths of the colder South Bohemian plain was published in 1953.⁵⁾ Three years later there were collected from the same locality two more pairs of this species, which, however, as has been proved in the course of time, appears to be lacking in the Phragmiteta of the warmer lowlands of Central and South Europe.

In 1953 there was discovered in southern Slovakia (Neded) another remarkable representative of the phragmiticolous fauna, *Boučekiella depressa* Hffr., which was described by the author in the following year; shortly afterwards it was described again by Ferrière (*Urotyndarichus antoninæ* Ferr.) and Erdős from the French Riviera and Hungary respectively. At the same time both authors conducted intensive investigations of some localities of this type and brought a number of further results worth notice. Thus from southern France and Hungary was recorded a very characteristic new representative of Phragmiteta (parasite of *Chaetococcus phragmitis* March.) *Platencyrtus parkeri* Ferr. (*Platyencyrtus essuriens* Erd. & Nov.), from Hungary *Ioëssa crassicornis* Erd. and *Cerchysius gigas* Erd.; from both of these countries were recorded several new species from the affinity of the genus *Xanthoencyrtus*. For years, we have searched for the above species in Czechoslovakia, especially in the southern and south-eastern regions, but in vain. This failure is undoubtedly due to the fact that the localities which we have collected at had been disturbed by human activity several times in the past, and had thereby been deprived of the most interesting part of their specific biocœnosis. Only in 1957, 1958 and 1959 were there conducted entomological investigations of the primary, extensive, and therefore faunistically very interesting Phragmitetum in the neighbourhood of a lake near Břehyně (Doksy, North Bohemia), situated in a warm sandstone basin among eruptive basalt hills; together with other remarkable discoveries there were taken several highly interesting phragmiticolous species of the Chalcidoidea, such as *Platencyrtus parkeri* Ferr., *Cerchysius gigas* Erd., *Clytina giraudi* Erd., and others, so far only from this single Czechoslovak locality.

Boučekiella depressa Hffr. was first briefly described in "Ochrana přírody", 9: 173, 1954. Later (1955), Ferrière and Erdős gave detailed redescriptions. I think it is appropriate to give here a reprint of the brief original diagnosis and to supplement it by an accurate illustration of the type:

„*Boučekiella* n. gen. ♀: Corpore toto valde depresso. Capite prognath. Oculis omnino parvis. Fronte latissima; ocellis triangulo fortiter obtuse angulari. Clava antennarum inarticulata. Mandibulis duabus dentibus acutis et una elevatione in parte interna instructis. Sulcis parapsidalibus nullis. Scutello postice late rotundato. Alis anticis haud longis, leviter infumatis, maculis parvis fasciaeque transverso in parte distali, haud distincte limitata, obscurioribus ornatis; vena marginali valde crassa, latitudine $2\frac{1}{2} \times$ longiore; v. stigmali quam marginali paulo brevior, valde angusta; v. postmarginali brevissima. Pedibus crassis, brevibus; metatarso medio quam articulo sequenti solum modo paulo longiore. Abdomine thorace distincte longiore, in parte basali fere parallelo, in parte distali

⁵⁾ It is not without interest that in 1957 Burks described from New Delhi (India) a very characteristic species which he called *Dusmetia indica* Burks, bred from the scale *Antonina graminis* (Mask.), and showing a certain relation to our genus *Aquencyrtus*.

acute triangulariter terminato, cum ovipositore valde prominente. Pygostylis seta unica longiore instructis. Colore submetallico. Sculptura capitis thoraceque coriacea. — ♂ ignotus.

Genotypus: *Boučekiella depressa* n. sp. Corpore toto piceo, capite thoraceque viride nitente; pedibus antennisque brunnescentibus. Alis anticis apice ovipositori vix attingentibus. Parte producta ovipositoris tertiæ parti abdominis adequate. Long: 1.3 mm.

Slov. mer.: Sered⁶⁾ (in lucis inundatis ad ripas Vagi fluminis typum Dr. Z. Bouček legit).“

Synonymic and other critical notes

An increased development of the European chalcidology in the past ten years has been manifest also in a considerable deepening of knowledge of the family Encyrtidæ. A number of authors have treated the fauna of this family in fields so far more or less disregarded in this respect, often independently of one another. Therefore, in addition to regional-systematic research itself, it will also be necessary to direct attention to mutual comparisons of newly delimited species, described chiefly by European authors, and to make the necessary synonymic adjustments. Furthermore, it will be necessary to continue critical studies of species of earlier authors, and checking the accuracy of their present interpretations on the basis of comparing current material with the type material of classic authors, which has hitherto been but very little utilized from the taxonomic standpoint. In this respect the works of Kerrich, v. Graham, Claridge, and others, giving redescriptions of earlier authors in the main, are of great significance and merit.

Of the Central European workers it has recently been particularly Dr. J. Erdős who has treated very extensive chalcidological materials deposited in the Budapest Museum, as well as those of his own collection. Since the fauna of Hungary (the greatest part of Erdős's paper concerns the chalcidofauna of that state)⁷⁾ is very closely allied to that of Czecho-

⁶⁾ False pro „Neded“!

⁷⁾ Of the many studies of Dr. J. Erdős, of prime importance to us is his publication „Series Encyrtidarum novarum hungaricarum“, *Acta Zool. Acad. Sci. Hung.* 3: 5—87, Budapest 1937.

However, it is necessary to state that the contents of the author's paper do not correspond with its title, and a superficial study of the text may mislead one to suppose that some discoveries made on the territory of neighbouring states might be incorrectly regarded as finds from Hungary. This discrepancy is due in the first place to a sort of zoogeographic map (the author of which is L. Mocsár) comprising also regions beyond the limits of Hungarian territory, which together form neither a natural zoogeographic whole, nor a political one. Since this map is referred to in the enumeration of discoveries, it often happens that in the work are stated also local names from Czechoslovakia, Jugoslavia, Rumania, U.S.S.R. and Poland intermixed with Hungarian localities and, moreover, under incorrect names, which are in fact Hungarian translations of the official names, whereas the rest of the text is in Latin (i.e. in an international language). This naturally leads to an incorrect notion of the geographical distribution of species. The confusion is further increased by the fact that state frontiers have been quite omitted in the map. On principle, it is certainly right not to limit oneself even in regional systematic-faunistic works only to recording the distribution of species on the territory of this or that state, whose political frontiers are not as a rule natural frontiers. However, in specifying localities, the state within whose limits the locality occurs must be given first; for a general knowledge of all local names cannot be taken for granted. Besides, in scientific works

slovakia, it is natural that in the works of this writer and ours there are a number of common, up to the present unresolved questions; in the following lines I should like to clarify some of them, which has been made possible by the kindness of the author, who has readily lent me a number of specimens from the material he has treated. Besides, I also give some synonymic adjustments concerning forms described as new or incorrectly interpreted in my own publications or in the works of other authors.

In the species *Anomalicornia tenuicornis* Merc., Erdős 1957 describes an unknown female. As has recently turned out, both the type and all the other hitherto known specimens belong to the female, and not to the male sex! The form which the author describes is the first true male of this genus, for I myself also have one specimen which corresponds to the above description and about whose being a male there is no doubt. We give here an illustration of the antennæ of both sexes of the species living in our country, from which it is evident that the character of the male and female antennæ in the genus *Anomalicornia*, as compared with other genera of the family, is just reversed. That is also why the so far collected females were believed to be males.

it is absolutely essential to use the official, and therefore the only legal and valid names of localities and not their translations.

Another remarkable work from the standpoint of the Central European chalcidology is the publication of the same author "A szivárványfűrkészek (*Encyrtidæ*) faunakatalogusa és etologiai adatai" (Cat. Hym., X). (*Enumeratio systematica Encyrtidarum (Hym.) Hungariæ regionumque finitimarum cum datis earum ethologicis.*) *Rovart Közlem. (Fol. Ent. Hung.)* 10: 1—104, 1957.

It is an enumeration of the Encyrtids of the already stated heterogeneous regions included in Mocsár's map. The author has brought together 304 species of this family and has presented also a number of new bionomical observations. He has given a comparison with several other countries (the Iberian peninsula, Finland, U.S.S.R., and North America), whereby he has documented the really remarkable results of his own research and scientific work, greatly supported also by extensive materials accumulated by other Hungarian entomologists, for the most part by Biró. In the introduction the author has remarked (and by rights) upon the faunal richness of this family in "his country"; unfortunately, it is just this work from which it is not clear how many species actually live on the territory of Hungary! If the author had limited himself in this study either only to the enumeration of Hungarian species, or to species of a geographically specific and therefore natural region, his comparison with the other countries would assuredly be more exact and informative. If this work was to treat of Hungarian species (as the author consistently terms it in the text), then the stated number of species is somewhat larger (the study records also single discoveries made by Hungarian collectors from the territory of neighbouring states); if, on the other hand, it was to treat of the more extensive, even though unnatural territory included in Mocsár's map, then again the number is too small, for the discoveries of non-Hungarian writers are not respected, particularly the remarkable results of our work in Slovakia so far published, which the author does not mention in a single case!

In the year 1956 I preliminarily recorded more than 300 Czechoslovak species of the family *Encyrtidæ*, distributed in 110 genera. Up to this day the number has considerably increased. There is no doubt that both Hungary and Czechoslovakia, in regard to their central geographical position on this continent, require a thorough investigation of their territory, which is unquestionably of considerable significance in solving the zoogeographic problems of Europe.

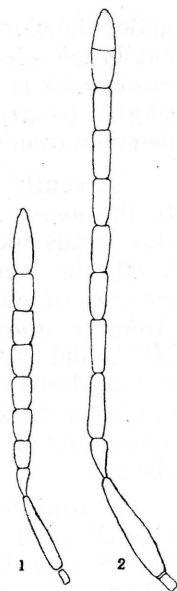
The species *Xanthoëctroma aquilinum* Merc. was in Central Europe first ascertained in Czechoslovakia, viz. in southern Slovakia (Kováčovské kopce) (*Ochrana přírody* 8: 84, 1953). This supplements Erdős's statement (l.c.): "Species ex Hispania descripta etiam in patria nostra (= Hungaria) inventa" of 1957. Most recently this species has been taken also in southern Moravia (Pavlovské kopce) and in northern Bohemia (Lovoš near Lovosice), which are the northernmost places of its occurrence.

In 1953 I published a preliminary diagnosis of the species *Anagyrus boučeki* Hffr.; a subsequent redescription was published by Erdős (1957). Domenichini, who later had the opportunity of comparing our specimens with the type of the hitherto unclear American species *Anagyrus yuccæ* Coq., declared the two species to be identical. Thus the earlier denomination of Coquerell is correct. Simultaneously with the species *Anagyrus boučeki* I described (likewise according to material from Czechoslovakia) the new species *Anagyrus bohemicus*; in the same year was issued Domenichini's paper, in which the same species is described from Förster's specimen under the name of *Anagyrus securicornis* Dom. As Domenichini's paper had come out shortly before the publication of my preliminary diagnosis of this species, the denomination *Anagyrus securicornis* Dom. is valid. It will yet be necessary to compare the species *Anagyrus szödensis* Erd. with the material revised by Domenichini.

In the description of *Quadencyrtus paradoxus* Hffr., Erdős (1957) states erroneously that the mandibles are two-toothed; in reality the mandibles bear four microscopic teeth on the inner side; in addition, the description should have been supplemented by the classic territory from which the species was described.

Pezaphycus obenbergeri Nov. was again described by Alam⁸⁾ in 1957

⁸⁾ The paper of this author of 1958 distinctly bears the character of those chalcidological works which rest exclusively on narrow, bred material. Consequently, the overwhelming majority of populations of bred species of parasites appear to the author to be separate forms, in details clearly distinct from species known up to now. However, in nature (where there live promiscuously a great number of populations from the most various conditions of milieu) the individual species are represented in a far greater width than if we obtain them from certain, ecologically narrowly limited conditions. Many species exhibit a particularly broad adaptability in this respect. It is therefore not possible to take up any attitude towards the species described as new in this paper until the material which has served as a basis for the descriptions has been confronted with as wide as possible series of affined known species. Although we cannot a priori preclude the possibility of the existence of closely related (and at the same time valid) species, it is nevertheless necessary, on the basis of present knowledge, to evaluate with reserve the differences which we ascertain in parasites reared from a single brood, therefore in a single population. However, the specificity of the host is not the sole factor that influences the change of characters within the range of natural variability of individual species of parasitic Microhymenoptera. Unnecessary synonymic confusion has resulted also from not respecting the more recent literature.



Anomalicornia tenuicornis Merc.
1. Antenna of ♂.
2. Antenna of ♀.

under the name of *Aphycus antennalis*; in all likelihood also his species *Aphycus brachypterus* is identical with the species noted above. Alam's *Euaphycus calunæ* is identical with the species for which I selected the name *Metaphycus bavarici* in 1954, but I have not yet described this form. Thus this denomination of mine is a "nomen nudum".

Recently species of the genus *Metaphycus* Merc. have been attributed to the genus *Aphycus* Mayr by some authors, whereby the conception of this genus has become broader than that of Mercet 1925. On the other hand, the genus *Euaphycus* Merc. is regarded as independent. The discoveries of several new species in Czechoslovakia, closely allied to the species *Aphycus apicalis* Dalm. (in the main the species *Aphycus fulvohirtus* Hffr. and *Aphycus atratulus* Hffr.), clearly indicate a narrower and to a considerable degree individual species group of relatively large species having a dark median spot on the forewings and a prominently protruded ovipositor; all of these species have a unicoloured funicle and always a white clava.

A considerable similarity of some species belonging to the genus *Homalotyloidea* Merc. to the species of the genus *Aphycus* Mayr (to which Mercet had drawn attention in 1925 when delimiting the species *Homalotyloidea aphycomorpha*, where he also correctly showed the differences between the two genera) explains why several later described species have not been generically correctly placed. Thus Erdős's species *Homalotyloidea leucocera*, which I delimited in 1954, seems to be in all probability *Aphycus fulvohirtus* Hffr. (the typical specimens have not yet been compared). On the other hand, the species *Aphycus šnofláki* Hffr. must be placed in the affinity of the genera *Isodromus* and *Homalotyloidea*, as well as the species *Aphycus nigrociliatus* Hffr.; the latter species appears to be synonymous with *H. aphycomorpha* Merc., although it has distinctly lighter spots on the forewings. The genus *Homalotyloidea* Merc., however, does not belong to the tribe Aphycini, as Erdős believes, but to the affinity of the genera *Isodromus* and *Homalotylus* (tribe Homalotylini)!

The species *Echthroplexiella crassa*, which I described in 1957, belongs most probably directly to the genus *Homalotyloidea* Merc., of which it is a further, hitherto unknown representative.

The genus *Echthroplexis* Först. has no systematic justification and must be united with the genus *Homalotylus* Mayr. Since Förster's denomination is the earlier one, it is Mayr's name which ought to be placed in synonymy according to nomenclatorial rules; however, I believe it would be appropriate to retain the name *Homalotylus*, as it is well-known, and to declare it as a "nomen conservandum". A suggestion to this effect ought to be presented to the nomenclatorial committee of the international entomological congress.

In my paper of 1957 ("Miscellanea encyrtidologica I") I expressed the view that *Athesmus luctuosus* Erd. & Nov. is identical with the species *Thomsonisca typica* Merc. Erdős's subsequent redescription fully confirms this opinion.

I have not yet had the possibility of comparing the in 1958 described genus and species *Kostarabia chionaspidis* Erd. with my genus and species *Heterencyrtus šumavicus* Hffr. (*Ochrana přírody* 2: 86, 1953), but I believe the two forms to be in all probability identical, although Erdős's total figure shows a 6-segmented funicle and a 3-segmented clava, while the type of the genus *Heterencyrtus* has a 7-segmented funicle and a 2-segmented clava. However, it is very difficult to perceive this characteristic in desiccated specimens, such as Erdős had at his disposal. All the other morphological characters, as well as the biology (parasite of *Chionaspis salicis* L!), are in conformity, so that it is hard to doubt the identity of the two forms. The same species has recently been described again by Heqvist (*Ent. Tidskr.* 1958) under the name of *Thomsonisca chionaspidis*.

Biróus anomalus Erd. & Nov., described in 1957, would certainly be one of the most remarkable forms of the family Encyrtidæ because of the quite singular structure of its antennæ. However, the discovery of a single female which is otherwise in agreement with the species *Microterys chalcostomus* Dalm. obliges us to a certain reserve, and we cannot even preclude the possibility of a very special case of teratology, manifested in a bilateral reduction of funicle segments. This eventuality is supported by another form of the tribe Microteryni I have captured, which has in its left antenna 6, in its right 5 funicle segments, while the basal segment of the right funicle is distinctly longer than in the left antenna. The question of the genus *Biróus* could be definitely settled only by the find of another specimen.

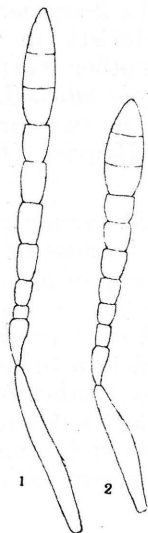
In 1957 (*Acta Faun. Entom. Mus. Nat. Pragæ*, 2: 51) I delimited a new genus of the family Encyrtidæ which I called "*Brachycyrtus*". Mr. B. D. Burks (Washington) was so kind as to draw my attention to the pre-occupation of this denomination. It was used first in 1880 by Kriechbaumer (Hym., Ichneumonidæ), and for the second time in 1886 by Fairmair (Coleoptera). I therefore substitute for the original denomination of the above genus the name "*Brachyencyrtus*" n. nov.

Trichomasthus niveicrus Erd. is a synonym of the species *Apterencyrtus eriococci* Ferr., as is evident already from the author's diagnosis. Only the venation in Erdős's total illustration is not clearly indicated (the post-marginal vein is in reality distinctly longer, the stigmal of a different shape!). This at a glance readily recognizable species is not, however, a typical representative of the genus *Apterencyrtus* Ashm., as I already mentioned in 1957 (*Acta Soc. Entom. Čechosl.*, LIV), and its placing in the genus *Trichomasthus* Thoms., as Erdős has done it, is to considerable degree justified.

I am not able, on the basis of series of my specimens, to distinguish with certainty the species *Mayridia subfuscipennis* Erd. and *Doliphoceras longiventre* Erd. from the species most closely allied to them. Numerous transitions confirm my view that in these cases there are involved aberrant individuals which do not deviate from the variability of known species.

I preliminarily described in "*Ochrana přírody*" (9: 172, 1954) a representative of the new genus *Moraviella* Hffr., the genotype *inexpectata* Hffr., from 3 female specimens (holotype and paratypes) taken in eastern

Moravia. Erdős places this genus in synonymy with the genus *Euzkadiella* Merc. on the basis of his own study of a male from Rumania, while the chief generic distinction (in addition to other striking differences) is in the first place the structure of the female antennæ, which in our genus are of a quite individual type. Below I give an illustration of the antennæ of the genotypes of both genera. It is therefore possible to consider an independent generic status for the species *inexpectata* Hffr. as justified.



1. *Moraviella inexpectata* Hffr., antenna of ♀. 2. *Euzkadiella integralis* Merc., antenna of ♀ (after Mercet).

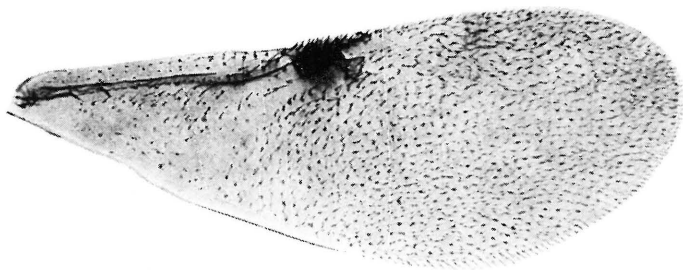
Erdős (1957) gives a key to the species of the genus *Discodes* Först. (also of the male sex), including also the species *Monodiscodes intermedius* Mayr; below he gives also a brief description of the male of this species. It is obvious that the author committed the same error I had made in 1954, for he has also considered as males untypical specimens of the female sex. The true male of the species *Monodiscodes intermedius* Mayr has ramified antennæ, as I later described it (1957)!

Unfortunately, in the figure the short and unramified first funicle segment was accidentally omitted, so that the figured antennæ exhibit practically only five funicle segments. In the diagnosis, however, the structure of the antenna is described correctly.

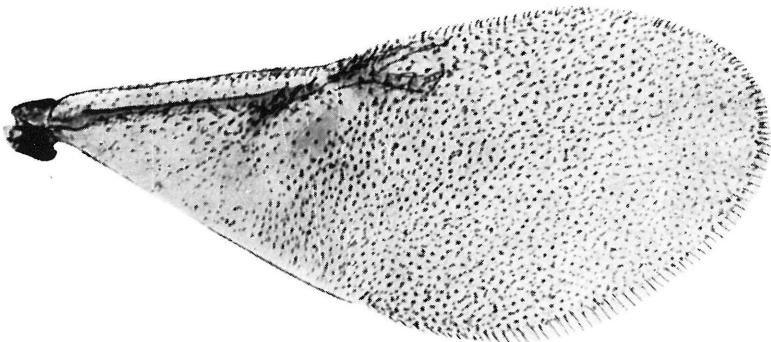
In my paper of 1957 on the Czechoslovak species of the genera *Paraphænodiscus* Gir. and *Paraphænodiscoides* Merc. I doubt the correctness of placing the species *Paraphænodiscus distinctus* Hffr. in synonymy with *Encyrtus jalysus* Walk., as Erdős did it in 1957. Dr. Graham, who has compared the redescription of this species with the type of Walker's species *E. jalysus*, has found this conception to be correct, however, so that it is necessary to consider Erdős's nomenclatorial adjustment as definitive.

I am not able to state any concrete differences between the diagnosis of Tachikawa's species *Eugahania yanoi* and the European specimens belonging to the species *E. fumripennis* Ratzb. In his paper of 1956 Tachikawa compares this new species of his with the inaccurate and to a considerable extent schematic illustration of Mercet, particularly as regards the shape of the forewings. On this basis he comes to distinctions which, however, actually do not exist. I am confirmed in my conviction by a series of specimens from Czechoslovakia which may be supposed to be conspecific with Ratzeburg's type from Germany (destroyed together with the other type material of this author), for this species is spread all over Central and South Europe. All my specimens are essentially in perfect conformity with the diagnosis of Tachikawa's species *E. yanoi* from Japan. Consequently it is possible to place this species in synonymy with the species *E. fumripennis* Ratzb.

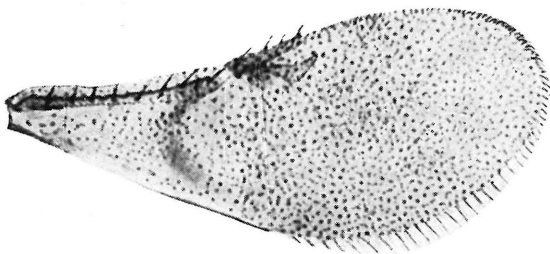
1



2



3



4

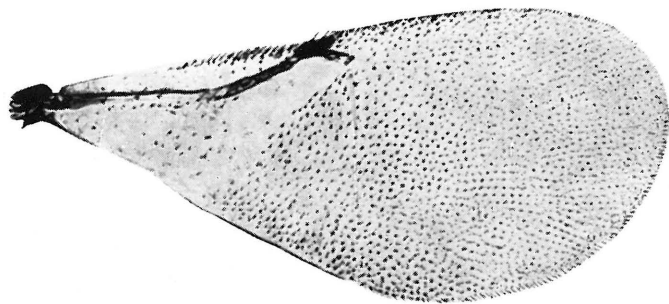


Plate I.

Anterior wings of Czechoslovak Encyrtidæ: 1. *Cerchysiopsis confusus* n. g. n. sp. 2. *Ixodiphagus semiluniger* n. sp. 3. *I. breviventris* Kurdj. 4. *Hungariella piceæ* Erd.

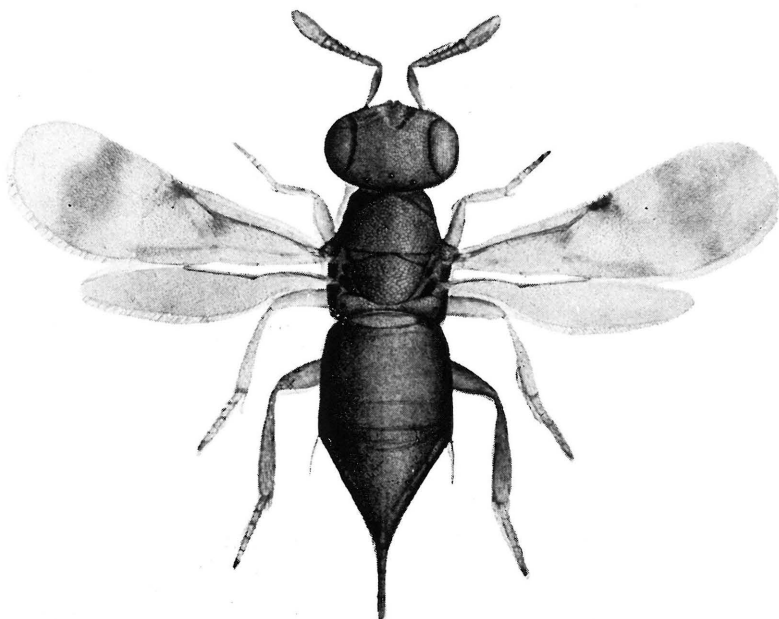


Plate II.

Above: *Eupoecilopoda perpunctata* (Masi) ♀. General view. Below: *Boučekiella depressa* Hffr. ♀. General view.

Plate III.

Ridges of Belanian Tatra Mts. (High Tatra region). Classical locality of the species: *Metallon albiclavatum* Hffr. f. *macroptera*, *Paraphænodiscoides tatricus* Hffr., *Paraphænodiscus carpathicus* Hffr., *Protyndarichus tatricus* Hffr.; near the base of the massif the locality of *Hungariella piceæ* Erd. Other remarkable finds from the same locality: *Pezaphycus obenbergeri* Nov. f. *macroptera*, *Blastothrix truncatipennis* Ferr., *Homalotyloidea novickyi* Hffr., *Copidosoma globiceps* Erd., *Metacheiloncurus submuticus* Thoms. and others.



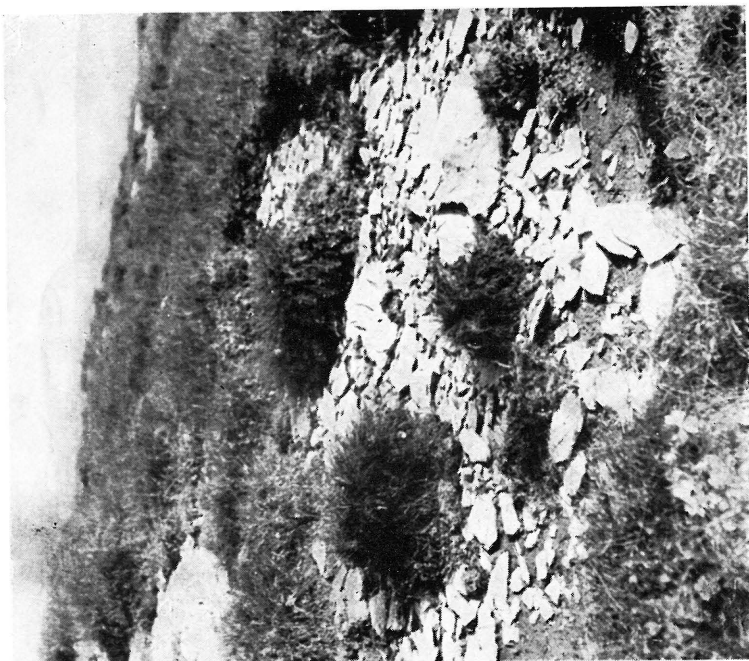
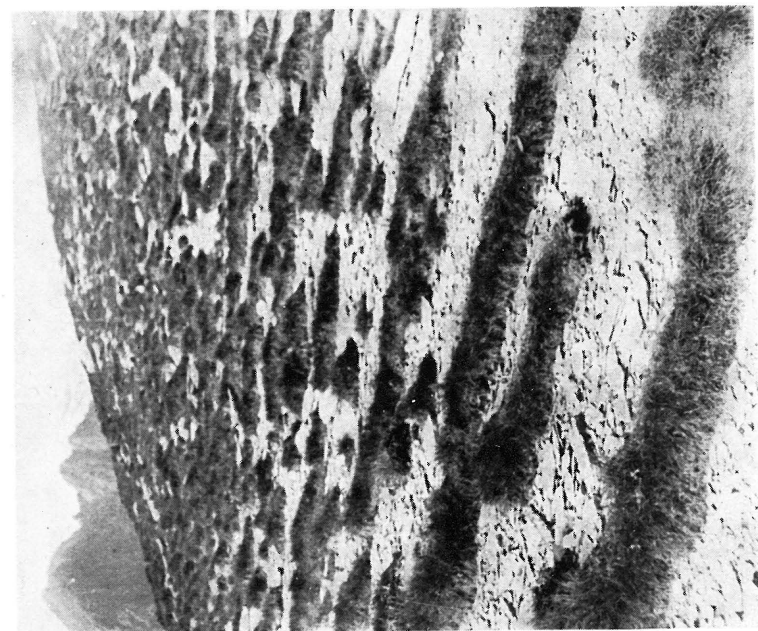


Plate IV.
Ridges of Belanian Tatra Mts. Detail of the locality.

Plate V.

Jurassic limestone massif of the "Pavlovské kopce". Above: Hill "Svatý Kopeček" near Mikulov. Below: Hill "Děvín". Calcareophile steppe flora and fauna. The classical locality of the species: *Homalotyloidea crassa* Hffr., *Echthroplexiella orientalis* Hffr., *Cerchysiopsis confusus* Hffr. Other remarkable finds from the locality: *Anagyris yuccæ* Coq., *Xanthoëctroma aquilinum* Merc., *Dinocarsiella alpina* Gir., *Dicarnosis helena* Hffr., *Echthroplexiella similis* Hffr., *Aphyculus zavadili* Hffr., *A. perparvus* Hffr., *Microterys contractus* (Hffr.), *Monodiscodes intermedius* (Mayr), *Semen apterum* Hffr., *Cheiloneurus fulvescens* Hffr. and *Ch. claviger* Thoms.

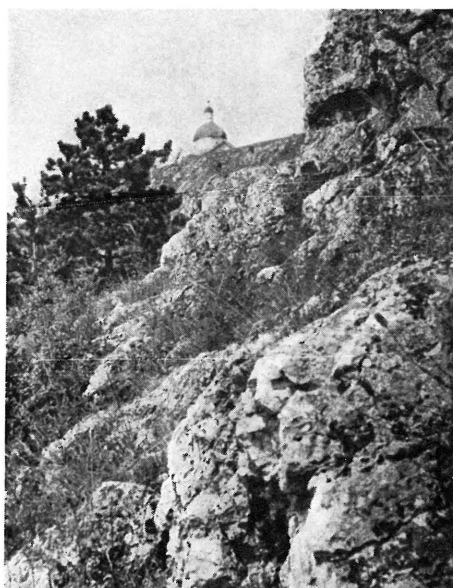
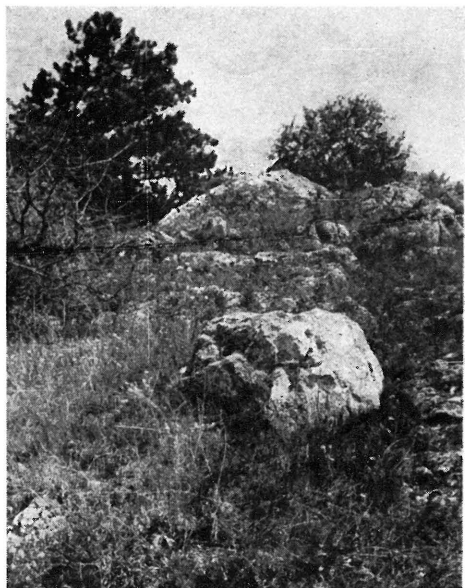


Plate VI.

Above left: Phragmitetum "Šatlavy" near the pond "Velký Tisý" in Southern Bohemia. Classical locality of the species *Aquencyrtus bohemicus* Hffr. Above right: Xerothermous ravines near Horky (environments of Tábor, South Bohemia). Classical locality of the species *Ixodiphagus semiluniger* Hffr. and *Paraphænodiscus mariæ* Hffr. Locality of the species: *Quadrencyrtus paradoxus* Hffr. and *Paraphænodiscus jalysus* Walk. Below left: Hill "Hazmburk" near Libochovice (Bohemia sept.). Steppe on basalt. Classical locality of the species *Schedioides* (sg. *Hazmburkia*) *dimorphus* Hffr. and *Cheiloneurus fulvescens* Hffr. Locality of the species *Agromyzæphagus detrimentosus* Gah. Below right: Borkovice peat-bogs (South Bohemia). Formation of *Ledum palustre* L. under *Pinus mugo* ssp. *uncinata* (Ant.) Dom.

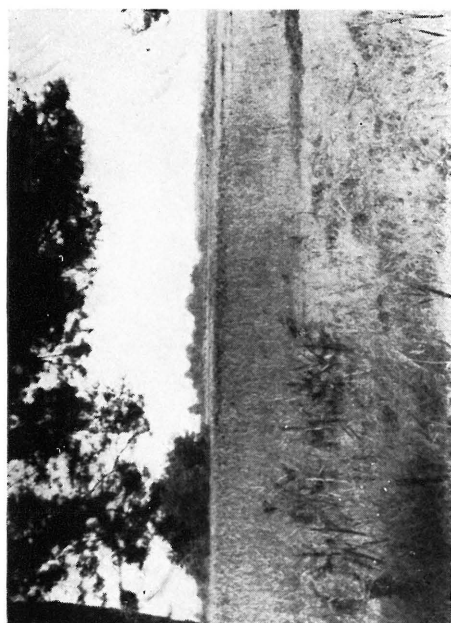
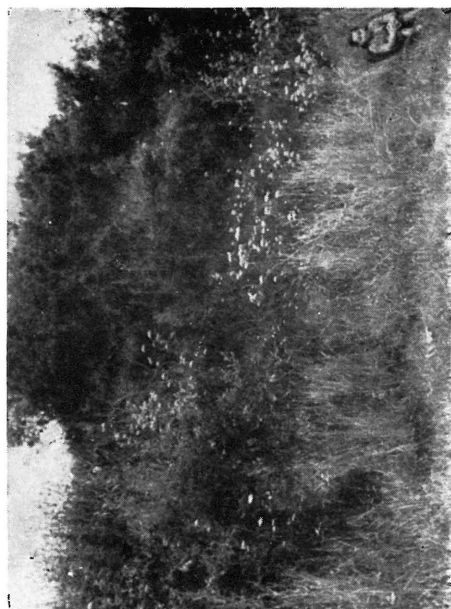


Plate VII.

Borkovice peat-bogs. Above left: Primeval forest formation of leafwoods in the fen part of the reservation. Above right: Recently exploited areas; in the background young shrub vegetation. Below left: Water basins caused by exploitation are being quickly overgrown by swamp vegetation. Below right: Western edge of the basin bordered by a broad stripe of *Spiræa salicifolia* L.

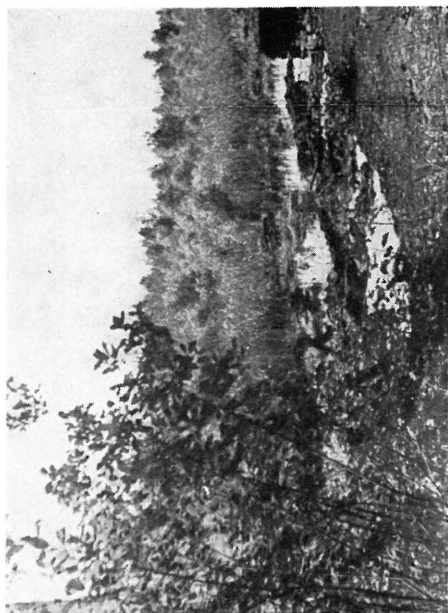
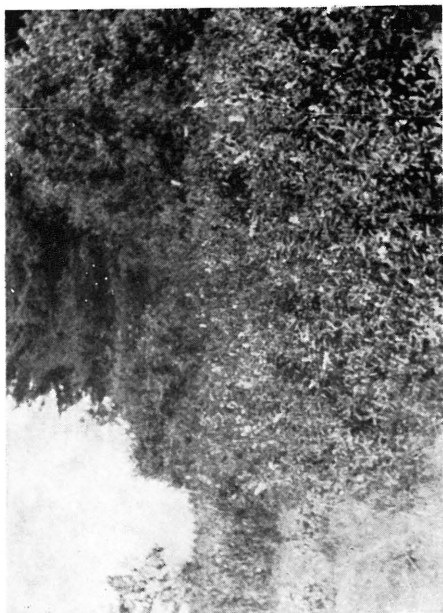
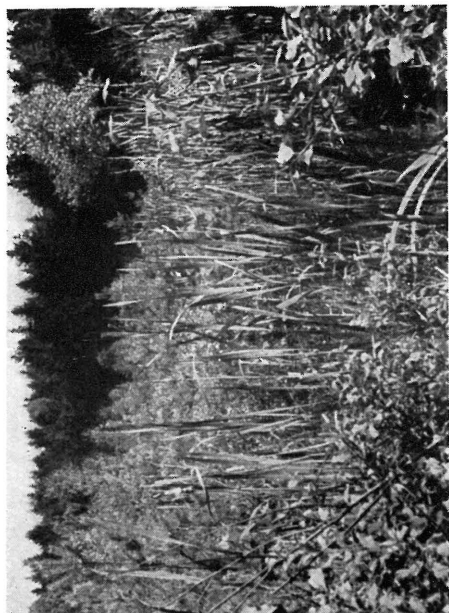
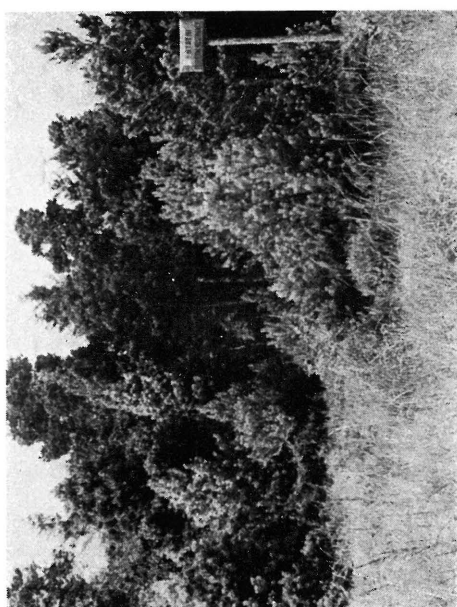
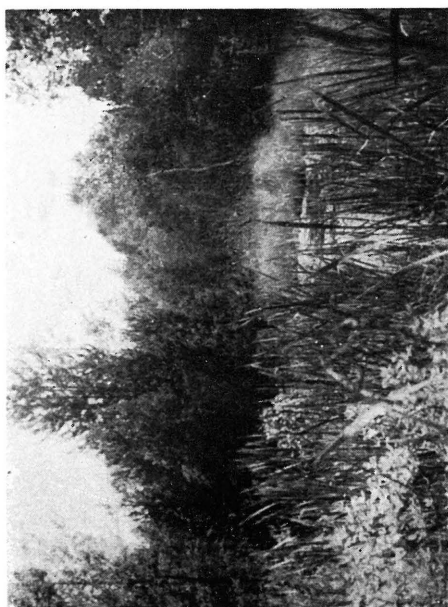
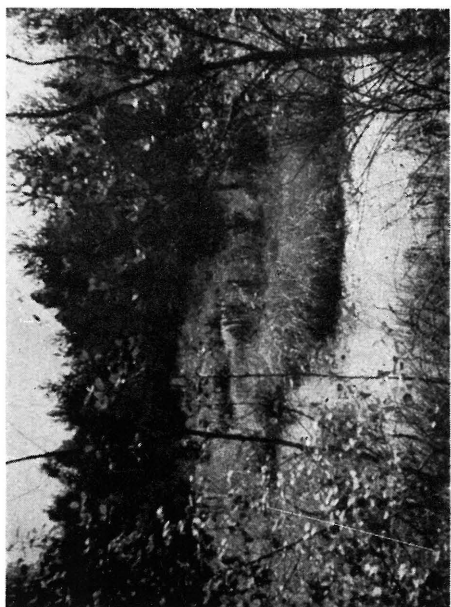


Plate VIII.

Borkovice peat-bogs (near Veselí n. L. and Soběslav, South Bohemia). Above left: Younger mixed vegetation in peat-bog. Above right: Primordial old formation of *Pinus mugo* ssp. *uncinata*. Below: Fen localities. Views of the former natural state reservation, destroyed in the last years. Classical localities of the species *Stemmatosteres bohemicus* Hffr., *Isodromus* n. sp. (as yet undescribed), *Copidosoma cultriforme* Hffr., *C. giganteum* Hffr., *Curbitus viridescens* Hffr., *Protyndarichus borkovicensis* Hffr., *Cheiloneurus longiventris* Rusch, f. *brachyptera* etc. Zoogeographically important finds: *Aphyculus zavadili* Hffr., *Homalotylus hispanicus* Merc., *Isodromus vinulus* (Dalm.), *Homalotyloidea novickyi* Hffr., *Paraphænodiscus mariæ* Hffr., *Sectiliclava paliuri* Hffr., *Cheiloneurus claviger* Thoms. and *Metacheiloneurus submuticus* Thoms.



In 1957 I delimited the new genus *Curbitus* Hffr., with the type *C. viridescens* Hffr. However, this genus is identical with Mercet's genus *Aphycoides*, which in regard to the not exactly sufficiently accurate original diagnosis of the author was not clear to me until recently. For this reason, the name of the type species (*C. viridescens*) likewise falls as a synonym of *A. tenuis* Ratzb. Another species, described under the name of *C. niger* Hffr., must also be referred to the genus *Aphycoides*.

The species *Protyndarichus graminum* Erd., described in 1958, cannot be distinguished with certainty from *P. metallicus* Merc.! In my paper on the Czechoslovak species of the subtribe *Cheiloneurii* (1957) I have shown on the basis of large series that Mercet's species presents gradual transitions between the brachypterous and macropterous forms. Consequently this character cannot be regarded as a specific criterion. In addition, I have proved that in forms having shortened wings the frons is usually broader than in macropterous forms. If Erdős states that the ocelli of his new species are very small, then it is decidedly in connection with the shortened wings, for well-developed ocelli are to be found as a rule in forms able to fly well, and conversely. However, even in this character there is a certain variability deviating from the afore-said rule, as well as in the shape, length and coloration of the antennæ and legs, in the existence, size, shape and intensity of the dark spot on the wings, and in the sculpture of the scutellum. In my opinion, a very variable species is concerned, and therefore *P. graminum* Erd. cannot be regarded as a valid taxonomic category.

In 1957 I described on the basis of two brachypterous individuals the new species *Protyndarichus mayi*; I was not, however, fully convinced of the correctness of the generic position of this form and regarded it therefore as provisional. Independently, the same species was described by Erdős under the name of *Mayridia egidiopolitana*; although the systematic evaluation of strongly brachypterous forms often presents considerable difficulties, it is possible to agree with the conception of this author. Since his diagnosis was issued 1 month and 5 days prior to ours, Erdős's specific denomination is valid.

Leiocyrtus clavatus Erd. & Nov., which I possess in a number of specimens from Czechoslovakia, falls within close affinity of the species *Tyndarichus læviscutellum* Merc., if it is not actually identical with it. The somewhat flatter habit hardly justifies the designation of a separate genus.

On the basis of Claridge's redescription of the species *Cheiloneurus submuticus* Thoms. I have come to the conclusion that my species *Metacheiloneurus mæstus* is identical with this species. Although Thomson's original diagnosis admits the existence of a scutellar hair bush ("fasciculo apicali minus dense discedens"), our specimens prove to be entirely without this important character. Claridge, who has studied the type of the species *submuticus* Thoms., has made the quoted passage of the diagnosis of the author's species more precise by saying: "... 'hair bush' much reduced with only a few hairs (fig. 5)". In all the other characters our specimens quite agree with Claridge's redescription. The desig-

nation of the separate genus *Metacheiloneurus* (justified already by our diagnosis) is also supported by Claridge's taxonomic conclusions (the author enumerates a number of specific characters in which - as he himself states - the species *submuticus* Thoms. considerably differs from all hitherto known Palearctic species).

LITERATURE

- Alam, S. M., 1957: The taxonomy of some British Encyrtid parasites (Hymenoptera) of scale insects (Coccidoidea). *Trans. Roy. Entom. Soc. London*, 109: 421—466.
- Ashmead, W. H., 1904: Classification of the superfamily Chalcidoidea. *Mem. Carnegie Mus.*, 1: 225—532.
- Burks, B. D., 1957: A new parasite of the Rhodes-grass scale (Hymenoptera, Encyrtidae). *Bul. Brookl. Entom. Soc.*, 52: 1—4.
- Claridge, M. F., 1958: The British and Scandinavian species of the genus *Cheiloneurus* Westwood (Hym., Encyrtidae). *Ent. Month. Mag.*, 94: 156—161.
- Compere, H., 1939: Mealybugs and their insect enemies in South America. *Univ. Calif. Publ. Entom.*, 7: 57—74.
- Compere, H. & Smith, H. S., 1932: The control of the citrophilous mealybug by Australian parasites. *Hilgardia*, 6: 585—618.
- Domenichini, G., 1953: Sinonimia di alcune specie europee del gen. *Anagyrus* How. e descrizione di una nuova specie del genere. *Boll. Zool. Agr. Bachic.*, 19: 53—61.
- Erdős, J., 1946: Genera nova et species novae Chalcidoidarum. *Ann. Hist.-Nat. Mus. Nat. Hung.*, 39: 131—165.
- Erdős, J., 1955: Observationes de insectis nocivis eorumque parasitis in Phragmite vulgari Lam. *Allatt. Közlem.*, 45: 33—48.
- Erdős, J., 1956: Chalcidoidea nova in collectione Birói (Hymenoptera). *Ann. Hist.-Nat. Mus. Nat. Hung.*, 7: 181—194.
- Erdős, J., 1957: Series Encyrtidarum novarum hungaricarum. *Acta Zool. Acad. Sci. Hung.*, 3: 6—87.
- Erdős, J., 1957: Miscellanea chalcidologica hungarica. *Ann. Hist.-Nat. Mus. Nat. Hung.*, 8: 347—374.
- Erdős, J., 1957: Beobachtungen über die Insectencönose des Schilfes. *Tagungsber.*, 11: 171—177.
- Erdős, J., 1957: Recentiores observationes entomolocenologicae in Phragmite communi Trin. *Allatt. Közlem.*, 46: 49—65.
- Erdős, J., 1957: Enumeratio systematica Encyrtidarum (Hym.) Hungariae regionumque finitimarum, cum datis earum ethologicis. *Fol. Entom. Hung.*, 10: 1—104.
- Erdős, J. & Novický, S., 1955: Genera Encyrtidarum regionis palaeoarticae. *Beitr. Entom.*, 5: 165—202.
- Ferrière, Ch., 1955: Encyrtides paléarctiques (Hym., Chalcidoidea). Nouvelle table des genres avec notes et synonymies. *Mitt. Schweiz. Entom. Ges.*, 26: 1—45.
- Ferrière, Ch., 1955: Encyrtides nouveaux ou peu connus. *Bull. Soc. Entom. Suisse*, 28: 115—139.
- Fiedler, O. G. H., 1953: A new African tick parasite, *Hunterellus theileræ* n. sp. *Journ. Veter. Res.*, 26: 61—63, tab.
- Gahan, A. B., 1912: Description of two new genera and six new species of parasitic Hymenoptera. *Proc. Entom. Soc. Washington*, 14: 2—8.
- Gahan, A. B., 1934: On the identities of Chalcidoid tick parasites (Hymenoptera). *Proc. Entom. Soc. Washington*, 36: 89—97.

- Ghesquière, J., 1956: Remarques taxonomiques et biologiques sur quelques Encyrtides (Hym., Chalcidoidea). *Boll. Lab. Zool. Gen. Agr. „Filippo Silvestri“, Portici*, 33: 683—707.
- Girault, A. A., 1915: Australian Hymenoptera Chalcidoidea: VII. Encyrtidæ. *Mem. Queensl. Mus.*, 4: 1—184.
- Heqvist, K. J., 1958: Notes on Chalcidoidea. II. Chalcids reared from *Chionaspis salicis* L. *Ent. Tidskn.*, 1958, 56—58.
- Hoffer, A., 1953: Encyrtidæ (Hymenoptera-Chalcidoidea), quæ in reservationibus naturæ in Čechoslovakia occurrunt. I. *Ochr. přír.*, 8: 83—90.
- Hoffer, A., 1953: De novo Encyrtidarum genere novaque specie fauna Čechosloviakæ, *Quadrencyrtus paradoxus* n. g. n. sp. *Acta Entomol. Mus. Nat. Pragæ*, 28: 397—400.
- Hoffer, A., 1953: Monograph of the Czechoslovak species of the tribe Dinocarsini n. trib. *Acta Entom. Mus. Nat. Pragæ*, 28: 77—104, 3 tab.
- Hoffer, A., 1954: Encyrtidæ (Hymenoptera-Chalcidoidea), quæ in reservationibus naturæ in Čechoslovakia occurrunt. II. *Ochr. přír.*, 9: 169—173.
- Hoffer, A., 1954: Monograph of the Czechoslovak species of the tribus Discodini n. trib. *Acta Soc. Entom. Čechosl.*, 50: 151—159, 2 tab.
- Hoffer, A., 1954: Monograph of the Czechoslovak species of the tribus Aphycini Hffr. Pars I. *Acta Soc. Entom. Čechosl.*, 51: 71—114.
- Hoffer, A., 1955: The phylogeny and taxonomy of the family Encyrtidæ (Hym., Chalcidoidea). *Acta Mus. Nat. Pragæ*, 11: 1—23.
- Hoffer, A., 1956: Results of fundamental research in Czechoslovak species of the family Encyrtidæ, taking part in the natural regulation of population of Cochineal (Coccodea) in this country. *Acta Univ. Agr. Praha*, 1956, pp. 119—151.
- Hoffer, A., 1957: Miscellanea encyrtidologica I. *Acta Entom. Mus. Nat. Pragæ*, 31: 191—220.
- Hoffer, A., 1958: Miscellanea encyrtidologica II. *Acta Faun. Entom. Mus. Nat. Pragæ*, 2: 51—73.
- Hoffer, A., 1958: Die Tschechoslovakischen Arten der subtribus Cheiloneurii. *Acta Soc. Entom. Čechosl.*, 54: 327—355.
- Hoffer, A., 1958: Die Tschechoslovakischen Arten der Gattung *Paraphænodiscus* Gir. und *Paraphænodiscoides* Merc. *Acta Soc. Entom. Čechosl.*, 55: 250—263, 2 tab.
- Howard, L. O., 1892: Insects of the subfamily Encyrtinae with branched antennæ. *Proc. U. S. Nat. Mus.*, 15: 361—369.
- Howard, L. O., 1907: A Chalcidid parasite of a tick. *Entom. News*, 18: 375—378.
- Howard, L. O., 1908: Another Chalcidoid parasite of a tick. *Canad. Entom.*, 40: 239—241.
- Kryger, J. P., 1950: Notes on Chalcids II. *Ent. Medd.*, 26: 98—121.
- Kurdjumov, N. V., 1912: Six new species of Chalcid flies parasitic upon *Eriococcus greeni* Newstead. *Rev. Russe Entom.*, 12: 329—335.
- Masi, L., 1942: Descrizione di un nuovo *Isodromus* parassita di *Chrysopa formosa* Brauer (Hymenoptera Chalcididæ). *Boll. Ist. Entom. Un. Bologna*, 13: 106—109.
- Mayr, K., 1875: Die europäischen Encyrtiden. *Verh. Zool.-bot. Ges. Wien*, 25: 675—778.
- Mercet, R. G., 1921: Fauna Ibérica. Hymenópteros. Fam. Encírtidos. Madrid. Pp. 732.
- Mercet, R. G., 1925: Adiciones alla fauna española de Encírtidos (4a. nota) y una especie nueva de Francia. *Bol. Real Soc. Esp. Hist. Nat.*, 25: 144—153.
- Mercet, R. G., 1925: El género *Aphycus* y sus afines (Hym. Chalc.). *EOS*, 1: 7—31.
- Mercet, R. G., 1926: Los géneros *Chalcaspis* How. y *Eugahania* nuevo (Hym. Chalc.). *EOS*, 2: 43—48.
- Nikolskaja, M. N., 1950: Novyj vid parasita ixodovych kleščeij *Ixodiphagus hirtus* Nik., sp. n. (Hymenoptera, Chalcidoidea). *Parasit. Sborn. Zool. Inst. AN SSSR*, 12: 272—274.
- Nikolskaja, M. N., 1953: Chalcidy fauny SSSR (Chalcidoidea). Pp. 576.

- Novickij, S., 1931: Generis novi Encyrtidarum ex detrito litorali prope Albim flumen in Bohemia centr. exclusi descriptio (Hymen. Chalcid. Enc.). *Acta Entom. Mus. Nat. Pragæ*, 4: 105—110, tab.
- Peck, O., 1951: Superfamily Chalcidoidea in: Muesebeck-Krombein-Townes: Hymenoptera of America north of Mexico. Washington. Pp. 1420 (Encyrtidæ: 187—195).
- Ruschka, F., 1921: Chalcididenstudien I. *Verh. Zool.-bot. Ges. Wien, B*, 70: 234—315.
- Schmiedeknecht, O., 1909: Fam. Chalcididæ in: Wytzman: Genera Insectorum, 97, Bruxelles. Pp. 550.
- Schmiedeknecht, O., 1930: Die Hymenopteren Nord- und Mitteleuropas. Jena. (Encyrtidæ: 415—424.)
- Sugonjaev, E. E., 1958: On some parasitic Chalcid-wasps infesting Scale insects (Hymenoptera, Chalcidoidea) in Leningrad region. *Revue d'Entom. URSS*, 37: 308—318.
- Tachikawa, T., 1956: A revision of the species of the genus *Eugahania* Mercet 1926 (Hymenoptera: Encyrtidæ). *Kontyû*, 24: 161—165.
- Timberlake, P. H., 1929: Three new species of the hymenopterous family Encyrtidæ from New South Wales. *Univ. Calif. Publ. Entom.*, 5: 5—18.
- Westwood, J. O., 1837: Description of a new genus of British parasitic Hymenoptera. *Mag. Nat. Hist.*, 1: 257—259.