

MISCELLANEA ENCYRTIDOLOGICA I.

8. předběžná práce k monografickému zpracování čs. Encyrtidů
(Hym., Chalcidoidea).

Eight preliminary paper for the monographic investigation
of the Czechoslovak Encyrtidae (Hym., Chalcidoidea).

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Při zpracovávání dalšího materiálu z čel. *Encyrtidae* podařilo se mi odkrýti jednak řadu druhů pro vědu nových, jednak identifikovati samce některých forem, známých dosud jen v samičím pohlaví. Část těchto nových forem, pocházejících vesměs z našeho státního území, popisuji v této práci. Zaznamenávám zde i některé zoogeograficky významné nálezy a dodatkem přičleňuji i několik synonymických poznámek, týkajících se rovněž druhů u nás zastoupených.

Kolegovi Dr. Z. Boučkovi děkuji za přenechání řady exemplářů z jeho cenných sběrů, jež dále zpracovávám, i za pomoc při získávání některé těžko dostupné literatury.

In this work I give descriptions both of new species of the family *Encyrtidae* found on the territory of the Czechoslovak Republic, and some species of the hitherto unknown male sex. I also add some findings which are important from the zoogeographical point of view and some new places where we may find those species which have already been announced by us. Finally I attach some synonymical notes.

In addition to the author's own material, several important findings made by Dr. Z. Bouček (Praha) were also used for this study. Besides I should like to express gratitude for his unselfish help in obtaining some work which are difficult of access.

Genus *Echthroplexiella* Merc.

Four Spanish species of this genus (*E. submetalica* Merc., *consobrina* Merc., *aeneivetris* Merc. and *flava* Merc.), described by Mercet, in 1953 added to by Hoffer (*Acta Entom. Mus. Nat.*

Pragae XXVIII, pp. 57—69) with further new species from Czechoslovakia (*E. orientalis* Hffr., *moravica* Hffr. and *similis* Hffr.). In 1954 the same author described two new species which he classified with the genus *Waterstonia* Merc. (*W. tertia* Hffr. and *obscura* Hffr. — *Ochrana přír.* IX, p. 171 and *Acta Soc. Entom. Čechosl.*, LI, pp. 96—100) because of the extraordinary similarity to the genotype of this genus. In 1955 Erdős again described the first of the two species (*Acta Zool. Acad. Sci. Hung.*, I, p. 198—200), rejected its relationship to the genus *Waterstonia* Merc and placed it in the genus *Echthroplexiella* Merc., having the opportunity of comparing these two genera. Later the author had the possibility of observing both species on the basis of more extensive material and to distinguish them better; the hitherto unknown male of the species *E. obscura* Hffr. was also discovered and is described later. The species *E. orientalis* Hffr., described on the basis of a single female from Eastern Slovakia, was again discovered in southern Moravia in two specimens, of which one belonged to the hitherto unknown male of the species; we can also give its diagnosis later. Finally there was also found in our country (in Pavlovské kopce) another, very characteristic new species (*E. crassa* n. sp.), so far only the female.

On the basis of the above-described synonymical adjustments and of the latest research, the genus *Echthroplexiella* Merc. is represented in our fauna by eight species (*E. aeneiventris* Merc., *orientalis* Hffr., *moravica* Hffr., *flava* Merc., *similis* Hffr., *tertia* Hffr., *obscura* Hffr. and *crassa* n. sp.); in all of Europe a total of 11 species are known.

***Echthroplexiella orientalis* Hffr.**

Male (f. *brachyptera*):

Size: 1.16 mm.

Coloration same as in female, except that the tarsi of the 2^d and 3^d pair (with the exception of the last two segments) are lighter, yellowish white; the basal part of the tegulae lighter; rudiments of the wings are clear, with a slight smokiness in the distal part.

Size of eyes and width almost the same as for the female. Ocelli relatively small, set in an equilateral triangle, the posterior ones are twice as far from the rear edge of the head as from the internal orbits, from which they are separated for a distance which is scarcely twice as great as their diameter. Shorter antennae; scapus is visibly widened, most widened in the central part, three times as long as the following segment; pedicelus scarcely one and a half times as long as it is wide at the end, segments of the funiculus are squared, somewhat wider than the female's quite white, with short hairs, clava slightly longer than the two preceding segments, at the end slanting truncate.

Pronotum well developed, transverse, slightly longer than the meso-scutum. This is short, with only slightly marked parapsidal furrows. The scutellum is in the shape of an equilateral triangle, twice as long as the meso-

scutum, with finer lengthwise furrows than in the female. Rudiments of the wings prolonged to more of a point than in the other sex, extending beyond the basal third of the abdomen. Legs, especially the fore thighs, somewhat thicker, tarsi of the middle legs large and thick, with a few stiff, short white spines on the lower side; metatarsus three and a half times as long as wide, tibial spur perceptibly shorter.

Abdomen as long as the thorax, with a strong lustre, pygostyli half way down its length.

Localities in Czechoslovakia:

Besides the finding of holotypes (♀) by Brehovo in eastern Slovakia, this species was also found in our country in southern Moravia: Svatý Kopeček near Mikulov (steppe on limestone) on July 4th, 1952 one ♂ (allotypus) and July 7th, 1952 one ♀. Lgt. et coll. Hoffer.

Echthroplexiella obscura Hffr.

Mention has already been made earlier about the history of the species *E. tertia* Hffr. and *obscura* Hffr. A study of a greater number of females and the discovery of the hitherto unknown male of the species *E. obscura* Hffr. confirmed the fact there are two species involved, but ones which are relatively hard to define. The obvious criteria are the coloration of the body, and the presence or absence of parapsidal furrows, while the other differences are quite subtil, although constant. We give below a description of a hitherto unknown male of the species *E. obscura* Hffr.; the comparative table given below distinguishes best the two species.

It is worthy of notice that in these two related species (just as in the pair *E. flava* Merc. and *similis* Hffr.) the males are easier to distinguish than the females, a relatively rare phenomenon in the family *Encyrtidae*, where the bearers of the majority of the taxonomical marks are females.

Male (f. *brachyptera*):

Size: 0.84 mm.

Body light brown, eyes and ocelli reddish brown, funiculus and clava slightly grey, legs light brown, ends of the teguli, side parts of the propodeum and abdomen (with the exception of the first tergite) dark brown.

Square head, broader than the thorax. Forehead as wide as the transverse diameter of the eyes; these are very slightly elliptic, temples perceptibly developed, ocelli set in an equilateral triangle. Scapus cylindrical, twice as long as the following segment; pedicellus almost twice as long as wide; segments of the funiculus moderately transverse broadening gradually towards the ends of the antennae, fourth to sixth segment lengthening in the same direction; clava at the base as broad as the last segment of the funiculus, longer than the three preceding segments together, compact, the basal half slightly broadening toward the front, distal half transversely truncate.

Pronotum short, transverse, mesoscutum transversely rectangular with well-developed parapsidal furrows; scutellum perceptibly longer than it is wide at the base; relatively short axially. Posticolateral corners of the propodeum bluntly pointed. Rudiments of the four wings clear, in the typical

specimen reaching almost to the posterior end; speculum well developed. Legs relatively slender, metatarsus of the second pair long, tibial spur slightly shorter, slender, sharp.

Triangular abdomen, shorter than half of the thorax.

Localities in Czechoslovakia:

Forma *macroptera*: Moravia merid.: Dolní Věstonice (psamophil vegetation with scattered pools) July 4th, 1952 3 ♀♀.

Forma *brachyptera*: Ditto, July 3rd, 1952 one ♂ (allotype), 1 ♀. Lgt. et coll. Hoffer. The preceding findings have already been published. (Hoffer l. cit.)

Comparative Table of the Species *E. tertia* Hffr. and *obscura* Hffr.:

E. tertia Hffr.:

Body moderately broad, slightly arched, opaque sculpture.

Head, pronotum, mesonotum, first abdominal segment, as well as antennae and legs, sulphur yellow; scutellum end of the abdomen and basal two-thirds of the ovipositor brownish yellow; propodeum, the part around the pygostyli and the distal third of the ovipositor blackish; tegulae white; male coloured similar to the female, usually lighter, but for the abdomen (except for the first segment) bright red.

Distal transverse dark stripe on anterior wings of macropteris forms perceptibly distinct from the clear tops of the wing.

Segments of the funiculus slightly transverse; ovoid clava divided into three segments.

Parapsidal furrows are not developed.

Scutellum broader at the base than in length, almost flat; in the male as broad as long.

Stigmal vein only slightly perceptible, partially covered with a densely ciliated disc.

Ovipositor the same length or somewhat longer than half the abdomen.

E. obscura Hffr.:

Body somewhat more slender (especially in the males), arched, glistening.

Body, including tegulae, antennae, legs and ovipositor light brown, glistening, end of the scutellum somewhat darker, abdomen usually dark brown; male has the entire body light brown except for the dark brown abdomen.

Distal transverse dark stripe on anterior wings of macropteris form more weakly marked and as a result imperceptibly distinct from the top of the wing.

Segments of the funiculus square, clava undivided, slantingly truncate at the end.

Parapsidal furrows perceptibly developed.

Scutellum as broad at the base as long, perceptibly arched; in the male narrower at the base than long.

Stigmal vein very evident; ciliation disc more sparse.

Ovipositor rather short or the same length as half the abdomen.

Echthroplexiella crassa n. sp.

Female (f. *macroptera*):

Size: 1.38 mm.

Body sulphur yellow including the legs (with the exception of the last tarsal segment which is somewhat darker); white tegulae slightly brown at the end, yellowish brown antennae, reddish brown ocelli; propodeum and

abdomen yellowish brown, pygostyli black. Anterior wings slightly yellowish in the two distal thirds; veins yellow, marginal vein somewhat darker; posterior wings clear; habitus relatively quite broad; sculpture of the head and thorax the same; very finely leathered, dull, sparsely ciliate, short and dark.

Head transversely oval, as broad as the thorax in the broadest part. Eyes large with parallel internal orbits. Forehead perceptibly narrower than the transverse diameter of the eyes. Temples very short but perceptible. Ocelli set in a slightly acute triangle, the posterior ones separated from the internal orbits by a space which is equal to their diameter; set at triple the distance from the posterior edge of the head. Antennae relatively short and thick; scapus cylindrical, moderately projecting, scarcely three times as long as the following segment; pedicellus twice as long as it is wide at the end; segments of the funiculus quite heavy, perceptibly transverse, broadening toward the end of the antennae and moderately prolonged; clava compact, arched out, as broad as the last segment and almost as long as the four preceding segments taken together, rounded off at the end; scapus, pedicellus and funiculus not too densely longly ciliate; and clava densely and lightly ciliate with short hairs.

Pronotum very short, covered in the normal position. Mesoscutum strongly developed, half as broad as long, only slightly arched with very perceptible parapsidal furrows. Scutellum fully as long as the mesoscutum, moderately arched, bluntly pointed at the end; relatively short axillae. Broad propodeum, posticolateral corners are right angles. Anterior wings broad, not very long; veins exceed half the length of the wing; submarginal vein even; marginal vein dot-shaped, stigmal vein strongly turned away, even, not very long, broadened at the end; postmarginal vein perceptibly shorter; cellula costalis narrow; speculum very narrow, running the whole width of the wing; fine hairs on the disc, marginal cilia very short, equal to the length of the preceding. Posterior wings clear, quite short and broad, cilia of the lower edge normally developed. Thick legs; tarsi of the second pair thick with very long metatarsus; massive tibial spur perceptibly shorter than the metatarsus.

Abdomen shaped like an equilateral triangle, perceptibly shorter than the thorax, with a short first tergite and with pygostyli projecting as far as one-fifth of the length. Ovipositor projecting very shortly.

This species striking for its broad habitus, its relatively thick antennae and to a certain degree the formation of the vein system, is related to the lightly coloured species with clear wings.

Locality in Czechoslovakia:

Moravia merid.: Pavlovské kopce—Klausen (steppe on limestone) July 6, 1952 one ♀ (typus!). Lgt. et coll. Hoffer.

Echthroplexiella similis H f f r.

This species was found again in several steppe localities. Until now only the macropteretic forms of both sexes were known; in some cases the females have the wings only moderately shortened.

Localities in Czechoslovakia which have so far not been published:

Moravia merid.: Dolní Věstonice (psammophil vegetation) July 3, 1952 one ♂, 8 ♀♀; Pavlovské kopce (steppe on limestone): Děvín July 7, 1952 one ♂, Klausen July 6, 1952 two ♀♀, July 15, 1952 two ♀♀, Tuřold July 10, 1952 one ♂, Sv. Kopeček near Mikulov July 4 1952 one ♂, two ♀♀, July 7, 1952 seven ♀♀.

Slovakia merid.: Kovačovské kopce (steppe on igneous rock) July 5, 1947 one ♂, two ♀♀.

Genus *Lyka* Mercet

This genus was established on the basis of the only known species to date, the genotype *metalica* Mercet, which was described in the first place for the male and then for the female. Two species (♀♀) have been found in our country which in habitus and form of antennae strikingly recall Mercet species, less so by the characteristic parts of the vein system, the sculpture of the scutellum etc. So far, however, no male has been found in our country which would correspond in construction of the antennae to the genotype. We must therefore consider both of the species described below in the genus *Lyka* Mercet as classified to a certain degree in a provisional way.

Key to the Females of the Species of the Genus *Lyka* Mercet:

- 1 Body opaque; ocelli closer to the posterior edge of the head than to the orbits; pedicellus almost as long as the following two segments of the funiculus together; scutellum furrowed lengthwise; marginal vein strongly extended, stigmal vein long, postmarginal vein longer than the marginal *submetalica* Mercet.
- Body glistens; ocelli closer to the internal orbits than to the posterior margin of the head; pedicellus perceptibly shorter than the following two segments together; smooth scutellum, at most a fine sculptured network; marginal vein quadratic or slightly extended, stigmal vein relatively short and even, postmarginal vein shorter than marginal 2
- 2 Head and thorax dark metallic green; wings have large dark spot in the middle. *maculata* Hoffer.
- Frons, pronotum and axillae black, cheeks, mesoscutum and scutellum of splendid metallic purple; wings clear, slightly yellowish *maja* Hoffer.

Lyka maja n. sp.

Female.

Size: 1.22—1.30 mm.

Frons black. Facial part of forehead partly metallic green, partly metallic purple, cheeks, mesoscutum and scutellum intensively light metallic purple, with the exception of the axillae which, like the pronotum, the mesopleurae and the rest of the thorax, are black; abdomen brownish black to black with light greenish reflections, and sides purplish. Antennae brown, darker at the base, toward the distal lighter. Thighs brownish black; tibiae close to the knee are lighter with a dark strip in the basal part, changing smoothly to brown and light brown along the distal part; tarsi light brown, anterior pair somewhat darker, the middle metatarsus and spur yellowish white. Wings clear, evenly light yellowish, vein system light brown, the stigmal vein inly lightly pigmented, tegulae and projecting part of the ovipos-

itor brown. Sculpture of the forehead very finely leathered, cheeks furrowed lengthwise, facial parts smooth; pronotum and mesoscutum very finely netted, anterior part of the mesoscutum transversely furrowed; in addition the mesoscutum has several very fine pock marks quite far from each other; scutellum sculptured the same as the mesoscutum except that the netting is somewhat more perceptible; abdomen almost smooth. Entire forehead intensively glistening, with sparse, short and very fine grey ciliation.

Head somewhat broader than thorax; frons carries over into facial part at an obtuse angle; posterior edge is not sharply marked. Forehead as broad as the transverse diameter of the eyes. Eyes large, strongly bulging; internal orbits slightly protruding forward. Ocelli placed in an equilateral to slightly obtuse triangle; distance of the two posterior ones from the internal orbits less than their diameter, distance from posterior edge of the head double this. Antennae slender, almost as long as the thorax and posterior taken together; scapus cylindrical, two and a half times as long as the following segment; pedicellus three times as long as it is broad, segments of the funiculus extended, broadening moderately toward the end of the antennae, the three last segments gradually shortening so that the first segments are about three times as long as broad, the last segment scarcely twice as long as broad; clava cylindrical, pointed at the end, perceptibly three-segmented, as long as the three preceding segments of the funiculus taken together, the last segment of the clava sharply pointed, somewhat shorter than the preceding.

Pronotum short, very slanting, mesoscutum half as wide as long, arched; scutellum broader than long, somewhat shorter than the mesoscutum, bluntly triangular; propodeum short with the posticolateral corners rounded off. Wings broad, exceeding the abdomen by one-third their length; veins end shortly before half the wings' length; submarginal vein not very heavy, triangularly broadening in the distal third, cut short at the end; marginal vein thick, twice as long as it is wide; stigmal vein only half again as long, broadening at the end; postmarginal very short; a dense ciliation of the disc with relatively short hairs; speculum developed and narrow; submarginal vein has a number of very long fine hairs extending beyond the width of the costal cell, which is not too wide, bearing in the distal part a line of fine, long hairs; marginal ciliation of the wing quite short. Posterior wings two-thirds the length of the anterior. Legs slender, middle metatarsus three times as long as broad, spur perceptibly shorter.

Abdomen as long as the thorax, broadening in the basal part, remaining part triangular. The first abdominal tergite takes up approximately one-fourth the length of the posterior end. Pygostyli shifted toward the rear edge of the first tergite. Ovipositor slightly, but perceptibly, projecting.

Male: Unknown.

Biology: Unknown.

Distribution: Czechoslovakia.

Localities in Czechoslovakia:

Northern Bohemia: Mšené Lázňe (bogs) September 8, 1943 two ♀♀ (typus and paratypus). Lgt. et coll. Hoffer. East Bohemia: Vřeštov near Hradec Králové June 1953 two ♀♀ (paratypi). Lgt. Bouček, coll. Hoffer.

***Lyka maculata* n. sp.**

Female:

Size: 1.30 mm.

Head, pronotum, mesoscutum and scutellum dark metallic greenish, remainder of the thorax brownish black; abdomen has intensively metallic bluish-green reflections. Wings clear with large round dark spot under the characteristic part of the vein system so that the clear distal zone is narrower than the clear basal part of the wing; vein system dark brown, stigmal vein less intensively coloured. Legs brownish black, ends of the middle tibiae and tarsi light brown, metatarsus and tibial spur lighter. Projecting part of the ovipositor brown. Sculpture of the head, pronotum and mesoscutum very finely shagreened, scutellum almost bald with short white ciliation; abdomen smooth. Entire body glistening, especially the scutellum and abdomen.

In its broadest part the head is as broad as the thorax, similar to the shape of the preceding species; eyes and ocelli also shaped the same. Antennae relatively shorter, scapus cylindrical, almost twice as long as the following segment; pedicellus two and a half times as long as broad; first segment of funiculus only a little narrower and shorter than the pedicellus and also slightly shorter than the next segment; remaining four segments of the funiculus are shorter, about twice as long as broad, only slightly widening toward the end of the antennae; clava about as long as the three preceding segments together, as wide as the last segment of the funiculus, composed of three segments of the same length.

Pronotum short, but still it is somewhat longer than that of the preceding species. Mesoscutum short, yet it is somewhat longer than wide. Scutellum somewhat longer, as long as wide. Posticolateral corners of the propodeum are not sharply marked. Wings exceeding abdomen by about one third their length, quite broad; vein system ends before half the length of the wing, shaped like that of the previous species except that the marginal vein is slightly broader and narrower; ciliation of the disc and of the edges of the wings the same as for *Lyka maja* n. sp. Legs moderately heavy; metatarsus of the second pair at most three times as long as broad, tibial spur very short, reaching only to half the length of the metatarsus.

Abdomen as long as the thorax, shaped the same as the preceding species. Ovipositor slightly protruding.

Male: Unknown.

Biology: Unknown.

Distribution: Czechoslovakia.

Localities in Czechoslovakia:

Central Bohemia: "Koda" near Beroun (forest steppe on limestone base) July 20, 1954 one ♀ (typus!). Lgt. et coll. Hoffer.

Genus *Prionomastix* Mayr

There is only one species of this very interesting genus in Europe (forming an independent subtribe of the tribe *Homalotylini*). It has in the course of time gone through a certain confusion in regard to its delimitation and the identification of both sexes. It is the genotype of the genus:

Prionomastix morio M a y r

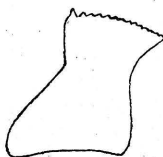
This species was described by D a l m a n in 1820 (*Vet. Acad. Handl.*, 1920, p. 164) who called it *Encyrtus morio*, according to a specimen of the male sex coming from western Sweden. This original diagnosis is relatively detailed and precise for its time, even though some of the most important signs are omitted. In 1834 N e e s copied in general the diagnosis made by D a l m a n, knowing also only the Swedish type found on June 10 (year?) On the basis of the D a l m a n's type and other specimens from the neighbourhood of Raguz (Switzerland, near the Lichtenstein border), M a y r established in 1875 the genus *Prionomastix* (*Verh. K. K. Zool. — bot. Ges. Wien*, XXV, p. 725—726). This diagnosis is also clear and striking on the whole, for it repeats a number of theses which D a l m a n used in describing the species. Independent of this author, T h o m s o n established for the same species the genus *Liocarus* (*Scand. Hym.*, IV, p. 121, 1875); on the basis of the already solved question of priority of M a y r - T h o m s o n, we must consider this name as a synonym. Until this time only the male sex had been known.

In 1909 S c h m i e d e k n e c h t (*Gen. Ins.* XCVII, pp. 194—5) described the female sex of the genotype according to a specimen found in Düryn and included coloured illustrations for it (Table 6, Fig. 2). These diagnoses, even if imprecise in some points (especially in the illustration there are a number of errors, such as an incorrect delineation of the venation, the short scutellum and relatively slender posterior legs), it still characterizes an actual female of this species. Later M e r c e t (1921) again described the male (*Fauna Ibér., Fam. Encirtidos*, pp. 567—8) according to a defective specimen which he borrowed from the Vienna Museum; this description he completed in 1923 (*Bol. Real. Soc. Esp. Hist. Nat.* XXIII, pp. 191—2) with a redescription of the female and a new illustration of the male. In 1949 H e l l é n recalled this species (*Notul. Entom.* XXIX, pp. 42—43); he presumed that T h o m s o n's publication had come out before M a y r's and therefore used the name *Liocarus* T h o m s, for the genus. He considered that D a l m a n's specimen was a female, deducing from this that T h o m s o n's, M a y r's and M e r c e t's diagnoses related to this sex; his opinion of S c h m i e d e k n e c h t's female specimen was that it represented another species of the gen. *Prionomastix*, or some new, related genus. He described males from four places where they were found in Finland, and linked them with the supposed female (actually a true male *P. morio*). As can be clearly seen from H e l l é n's diagnosis, this author obviously had before him a specimen which belonged to the genus *Encyrtus* D a l m., and the female which he attributed to it is, as the earlier authors had understood, a male of the gen. *Prionomastix* M a y r, of which S c h m i e d e k n e c h t found and described the other sex as well.

For a number of years no further specimen of this outstanding and very rare species was found; therefore the later descriptions were based on the older specimens which M a y r had at his disposal, and perhaps S c h m i e d e k n e c h t as well. Not until last year was this almost legendary species found again on the territory of our country — there were even several individual

specimens of both sexes. On the basis of these specimens, we could evaluate critically all that had been written previously about this species.

Since this species has been described several times, we shall limit ourselves here to a more precise comparison of both sexes and to a more detailed outlining of some of the most important characteristics.



1: *Prionomastix morio* M a y r. Mandibula.

As regards coloration, there is a substantial difference between the two sexes. The male has an intensely black and dull body, with the exception of the abdomen and the propodeum, which have a sheen. The antennae are sooty black, with the exception of the scapus which, except for the black tips, is reddish brown, as are the mandibles, eyes and ocelli. The anterior legs, except the black basal part of the femura and the last tarsal segments, are yellowish brown; the central legs are black, only the lower side and the end of the femur is yellowish white, the metatarsus and spur almost white; the posterior legs are all intensely black. The tegulae at the very end are light. The disc of the wings is clear; the venation is very slightly brownish, with the exception of the postmarginal vein which is substantially darker. The female has a similarly coloured head, together with the antennae and pronotum, whereas the mesoscutum (except for the more or less blackish anterior edge and black tegulae) and scutellum are orange brown; in most cases the abdomen sometimes the central part of the scutellum is, however, black, in an extreme case the entire scutellum can also be black. The femora of the anterior pair are entirely yellow; otherwise the coloration of the legs is like that of the male. The anterior wings have a perceptibly smoky band, stretching transversely from the postmarginal vein to the rear edge, and another, somewhat less intense, stripe at the very tip of the wing; the part around the characteristic part of the venation is the darkest.

Quite exceptional is the form of the mandibles. They are of a truncate shape, somewhat narrower at the base and in the middle than at the broadly truncate end. The interior has a more visibly separated small, sharp tooth, while the rest of the anterior edge is microscopically jagged.

The joint of the male's antennae is approximately mid-distance between the anterior ocellum and the oral aperture, while in the female it is shifted somewhat lower. The eyes of this species are relatively small, in dorsal aspect fourtimes wider than the width of the frons, in female slightly elliptic, almost rounded on the male. The ocelli are set in a perceptibly obtuse triangle, larger for the male than for the female; the distance between the two posterior ones is slightly greater than from the internal orbits in the male, perceptibly greater in the female. The sculpture of the head is some-

what coarser in the male; individual fine and scattered pit-marks are easy to see only in the facial, more glistening, part, not at the frons.

The antennae of the male are about as long as the head and thorax taken together, in the central part perceptibly broader than at both ends. The scapus is relatively quite short, about as long as the first segment of the funiculus, but a good half as slender, very slightly planed; the pedicellus is very short, at the end it is $1\frac{1}{2}$ times as broad as long; the funiculus is made up of six segments, similar in shape, broadening at the ridge, at the end broader than at the base, shallowly dug out, moderately shaping into an oval; their distal edge is rimmed with short, but quite heavy thorns; the first segment is the longest, more than twice as long as broad, the second segment is scarcely twice as long as broad, the third and fourth are somewhat broader and short, the fifth and sixth are gradually longer and more slender; the clava is compact, only slightly planed, much narrower than the segments of the funiculus and about as long as the two preceding segments taken together, rounded off at the end. The whole flagellum is covered with short, close and fine white hairs.

The antennae of the female are also about as long as the head and thorax taken together, moderate arched within, but differ from the male in that they are far less planed, and heaviest in the distal part; the segments of the flagellum are not widened on the ridge side, and edged with perceptible thorns, but are almost cylindrical and closely connected with each other, with much finer and denser closely lying cils. The scapus is slender, cylindrical, in the distal half broader than in the basal, six times as long as the pedicellus, this is perceptibly longer than broad, at the end almost as broad as the greatest width of the scapus; segments of the funiculus toward the end of the antennae broaden moderately and shorten slightly; the first segment at the base is as wide as the pedicellus, more than twice as long as wide, the fifth and sixth segments are as long as wide; the clava is not divided, slightly shorter than the three preceding segments taken together, in the basal part as wide as the preceding segment, at the end very gradually narrowing, rounded off at the end.

The pronotum is short, strongly transverse. The mesoscutum of the male is slightly broader than long, in the female it is much more transverse; leathered sculpture with fine pit marks quite far distant from each other, in the male somewhat more coarse than in the female. The scutellum is triangular, rounded at the end and, in the male as long as the mesoscutum, in the female somewhat longer; grainy sculpture forms fine, concentric furrows. Quite long and very glistening propodeum has truncate posticolateral corners. Ciliation of the entire thorax is short, fine, relatively sparse, grey-white (on a black background) to black (on the light-coloured parts of the thorax); only at the end of the scutellum are there some longer, bent hairs which, however, do not form any notable tuft.

Large, quite broad wings, noted for very short marginal cils, not exceeding the ciliation of the disc in length. Besides the coloration of the disc, the two sexes differ from each other to a considerable extent in the venation; the stigmal vein which rests on the submarginal vein shortly before the latter arrives at the edge of the wing, is quite long in the female, very moderately

projecting and almost parallel with the anterior edge of the wing, at the end there is not striking widening; the postmarginal is perceptibly shorter than twice the length of the stigmal vein. In the male the stigmal vein is shorter and curves away from the anterior edge of the wing; the thick postmarginal vein is a good double the length of the stigmal.

The shape of the legs has been relatively well described by various authors. We must stress, however, the striking thorniness of the lower side of the tarsal segments (chiefly the metatarsus) of the central legs and the striking planing of all the posterior legs, so characteristic of the genus *Prionomastix* Mayr.

In relation to the thorax the abdomen is markedly narrow, perceptibly shorter, high, the same shape for both sexes.

The size of our specimens is as follows: ♂♂ from 2.96 mm to 3.00 mm; ♀♀ from 3.22 to 3.25 mm.

Distribution of species *P. morio* Dalm.: Sweden, Switzerland, Germany, Czechoslovakia.

Localities in Czechoslovakia:

Slovakia merid.: around Štúrovo (Balanské vrchy): Kbelce (in the middle of a deciduous forest on a somewhat cleared spot) July 29, 1955, one ♀; lgt. Dr. J. Dlabola. At the same place and on the same date: two ♂♂ and two ♀♀; lgt. Dr. Z. Bouček, Nova Vieska (forest steppe, not far from the above-mentioned locality) July 30, 1955 one ♂, lgt. Dr. Bouček, coll.: one ♂ and one ♀: Bouček; two ♂♂ and two ♀♀: Hoffer.

Genus *Monodiscodes* Hffr.

This genus was established by the author in 1954 (*Acta Soc. Entom. Cechosl. L.*, p. 157), on the basis of the genotype *Phaenodiscus intermedius* Mayr, having substantial differences from all hitherto known species of the genus *Phaenodiscus* Först., where it has been classified up to now (e. g. two-toothed mandibles, shaped antennae, etc.). In the cited work the author describes both sexes, for in the series of specimens which he had at his disposal, two types were obviously to be seen; some specimens were smaller and more slender, with clear wings, others more robust, with the basal part of the anterior wings more or less smoky. On the other hand, there were no specially visible differences in the shape of the antennae. The more slender specimens, with clear wings, were presumed to be the males, while the larger, more robust insects with a smoky base to the wings were considered the females.

In collecting material of the family *Encyrtidae* from the neighbourhood of Štúrovo, in southern Slovakia, a single specimen was found which was habitually quite the same as the species *M. intermedius* (Mayr), but with markedly elongated second to fifth segments of the funiculus in the side branch, which at first glance reminded one of some forms of the already known genera with branched antennae. A detailed study showed that the above-mentioned specimen is actually the male of the species *Monodiscodes intermedius* (Mayr), whereas the other specimens with normally developed antennae, formerly considered males, are actually more slender females with light wings. It is not without interest that while female specimens of this

species have been found several times in southern Europe and in warmer regions of Central Europe (we know of several dozen specimens from our territory) the above-mentioned finding of a male still remains the only one; the striking shape of the antennae precludes the possibility of a mistake.

It is therefore necessary to correct part of the diagnosis of the genus, insofar as it relates to the male sex. We give below the detailed description of the male genotype which has already been published, and add an enumeration of further findings of those species in our country which have so far never been published.

Male:

"Habitus same as for the female. Shorter head, with very short, but perceptible temples, eyes smaller and shorter than in female. Forehead somewhat broader, pitted sculpture more shallow; ocelli perceptibly larger. Antennae composed of a cylindrical scapus, a very short pedicellus, six segments of the funiculus (of which the first is strongly transverse, the second to fifth drawn out into long branches, while the fifth segment is considerably elongated, but shorter than the sixth) and undivided clava, shorter than the preceding segment."

"Short pronotum. Mesoscutum normally developed. Scutellum triangular, in the posterior part raised, with axillae barely touching. Propodeum does not have very sharply indicated posticolateral corners. Anterior wings of normal length, quite broad; venation quite long; marginal vein slender, strongly elongated; stigmal vein moderately long and quite curved from the central edge of the wing; postmarginal vein long; cellula costalis well developed; speculum perceptible; disc of the wing not very densely ciliated with short hairs, marginal cils short. Posterior wings exceed two thirds of the length of the anterior wings. Legs normally developed without special modifications.

"Abdomen very short, triangular, pygostyli shifted forward."

Monodiscodes intermedius (M a y r)

Male:

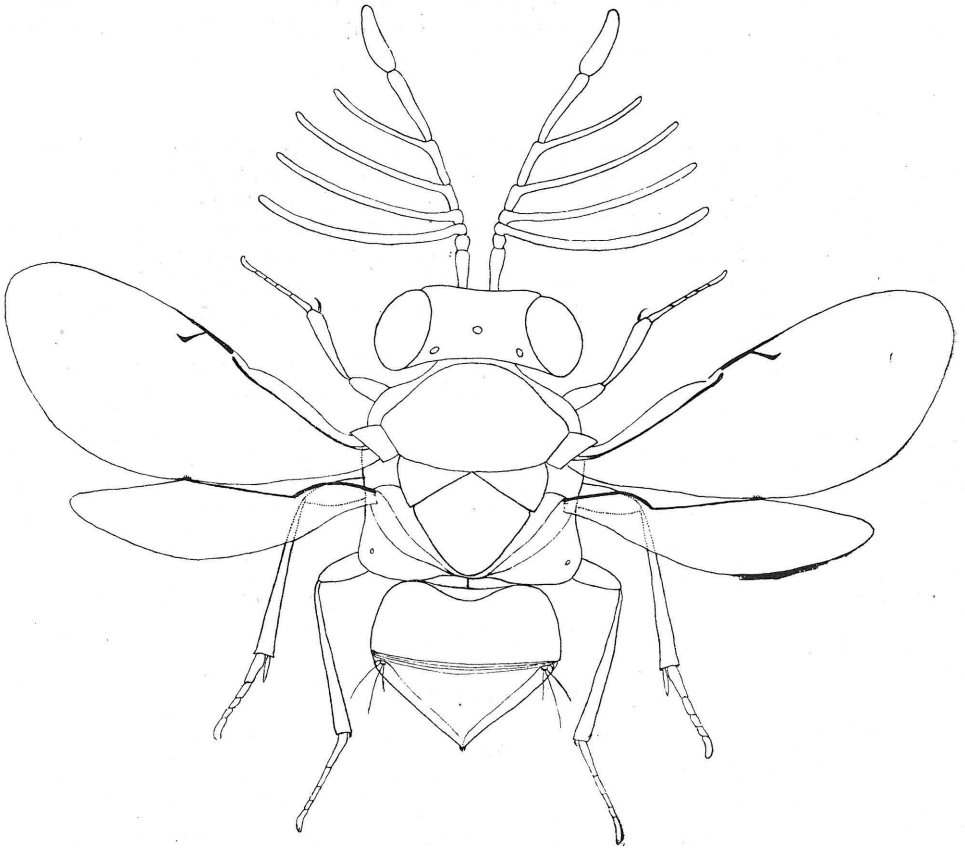
Size 1.85 mm.

Entire body black, with opaque sheen, slight bluish tinge. Antennae and legs coloured the same, with the exception of the tarsus and spurs of the central pair which are yellowish brown. Ocelli sulphur yellow. Wings clear, with slight yellowish tinge; venation brown.

Sculpture of the head not very coarsely pitted, of the thorax finely leathered, abdomen netted. Entire body grown over with short, sparse, light brown hairs.

Head somewhat narrower than the thorax. Eyes shortly elliptic. Forehead a little broader than twice the transverse diameter of the eye. Ocelli markedly large, set in a very obtuse triangle; posterior ocelli separated from the edge of the head by a space which is less than their longest diameter; distance from internal orbits three times this length. Cylindrical scapus, moderately curving; pedicellus as long as broad, four and a half times shorter than the scapus; first segment of the funiculus shorter than half the length of the

pedicellus, same width, second segment slightly longer, entirely elongated into a large side branch, third segment again somewhat longer than the preceding, with side branches as long, but more slender, fourth segment twice as long, in the distal part elongated into a branch which is imperceptibly and thinner,



2: *Monodiscodes intermedius* M a y r., male. General view.

fifth segment two and a half times as long, drawn out at the end into a thin branch, as long as two thirds of the preceding branch; sixth segment a third longer than the preceding, parallel clava, bluntly truncate, a little heavier and shorter than the sixth segment of the funiculus.

Pronotum is very short, covered above by the posterior part of the head. Mesoscutum twice as wide as long. Scutellum somewhat longer than wide, bluntly pointed at the end and with very narrow scallops; axillae moderately long. Propodeum short. Anterior wings a third longer than to the end of the posterior of the specimen; venation more than one half the length of the

anterior edge of the wing; submarginal vein slender, even, slightly curved in the distal part, cut off shortly at the end; marginal vein five times as long as broad; stigmal vein the same length, broadening at the end to the shape of a bird's head; postmarginal vein somewhat longer than the stigmal; broad cellula costalis; anterior edge of wing where the marginal vein begins is lightly cut out; speculum quite broad but here and there scattered short hairs; marginal cils very short, only a little longer at the rear of the wing. Central metatarsus four and a half times as long as broad, tibial spur perceptibly shorter, moderately broad.

Abdomen a little longer than half the length of the thorax, somewhat narrower, triangular, with netted sculpture; pygostyli at the end of the basal third.

Localities in Czechoslovakia:

In addition to the findings already published (Hoffer, loc. cit.) this new species was newly found in the following localities:

Central Moravia: Brno-Hády (steppe on limestone) August 1939 one ♀ (lgt. J. Šnoflák). Moravia merid.: Pavlovské kopce: Děvín June 26, 1954 one ♀, Tuřold July 16, 1946 one ♀, July 5, 1952 one ♀.

Slovakia merid.: Štúrovo (loess steppe drifts near the Danube in the direction of Ebed) July 1, 1947 five ♀♀, July 5, 1947 another three ♀♀, July 7, 1947 one ♂ (paratypus!), September 16, 1947 one ♀, May 4, 1948 two ♀♀; Kováčovské kopce (steppe on eruptive rock) July 16, 1947 four ♀♀, September 19, 1947 one ♀, May 5, 1949 one ♀, May 7, 1949 20 ♀♀. Lgt. et coll. Hoffer.

Genus *Semen* Hffr.

This genus was established by the author in 1954 (*Acta Soc. Entom. Čechosl., L.*, p. 176) according to the genotype *S. apterum* Hffr. Until now only the female of this species has been known, spread throughout central Europe, exclusively in steppe regions, reaching up to the northernmost borders of southern Moravia. In the material coming from Pavlovské kopce I also found later a number of males which in some respects remind one of the female and so can be attributed with great probability to the species *Semen apterum* Hffr. Therefore I shall complete the diagnosis of the genus below and give a description of the male of the genotype. To this I also add an enumeration of the hitherto unpublished findings of this species in Czechoslovakia.

On one of the most noted steppe regions in southern Slovakia, Belanské vrchy near Štúrovo, two specimens (♀♀) were found in addition to the preceding species. They were from the striking new species the habitus of which and morphological characters fully justify us to classify it in the same genus. As compared with the species *S. apterum* Hffr., our new species *S. politum* n. sp. has a number of outstanding characteristics which are further outlined in the diagnosis and in the comparative table.

In view of the distinct formation of some parts of the body, especially the thorax, in the species *S. politum* n. sp., we must adjust or change some of the theses in the genus diagnosis insofar as it relates to the females.

"...Sculpture of the body finely netted (flat, rounded depressions), quite coarsely and densely pitted, the head having, in addition to this, very

fine and sparse, scattered dots; according to this the body is strongly or dully glistening... eyes ellipsoid; internal orbits parallel to strongly diverging... thorax short, more or less arched; pronotum and mesonotum transverse, very short, the first always, the second sometimes, completely covered by the rear part of the head; scutellum strongly developed with axillae very far from each other, ending either in a triangular or a broadly truncate rear... metanotum and propodeum imperceptible. Rudiments of the anterior wings triangular in shape (in normal position not exceeding the hind edge of the thorax) transparent too, substantially foreshoted, scally..."

The genus description of the male is as follows:

"Somewhat smaller than the female, perceptibly more slender. Black coloration with light metallic tinge. Sculpture similar to the female.

"Head short, broad, oval, rear edge sharply indicated. Eyes small, very shortly elliptic. Forehead very broad. Ocelli relatively large, set in an obtuse triangle; the rear ones much closer to the rear edge of the head than to the internal orbits; temples perceptible. Antennae slender, long, with erect quite sparse and long ciliation; scapus cylindrical, moderately curved; pedicellus very short, heavier than the following segment; all segments of the funiculus perceptibly elongated; clava much longer than the preceding segment, almost as broad, undivided."

"Pronotum normal, without parapsidal furrows. Scutellum triangular, strongly raised and arched in the posterior part. Propodeum very short, posticolateral corners not very strongly indicated. Wings well developed, long, almost clear. Venation quite short; submarginal vein even, in the distal part slightly widened, marginal vein squarish, stigmal vein short, even, and postmarginal vein shorter. Speculum nit too distinctly developed; disc very shortly, sparsely ciliated. Hind wing relatively short; submarginal vein curved, marginal vein shorter. Legs quite slender, normally developed, only the femora (especially the posterior ones) more or less heavy; metatarsus of the second pair not very long."

"Abdomen shorter than thorax, ending in a triangle. Pygostyli shifted forward."

Semen apterum H f f r.

Male:

Size: 0.64 to 1.03 mm.

Body black with slight greenish tinge, glistening. Ocelli reddish brown. Antennae brownish black, in the basal part somewhat darker than in the distal. Clear wings or very slightly smoky on the basal edge and in the distal two-thirds of the disc; slight darkish, imperceptibly bordered spot close under the marginal vein; venation light brown, marginal and postmarginal veins darker. Legs brownish black, knees and tarsi, especially the second pair (including the tibial spurs), lighter.

Head fully as broad as the thorax in the region of the tegulae, very short. Eyes shortly oval, almost rounded; temples well developed. Forehead very broad, about three and a half times as the transverse diameter of the eyes. Ocelli set in an obtuse triangle; distance of the fore ocellum from the posterior twice the distance of the latter from the rear edge of the head, but somewhat

shorter than their distance from the internal orbits. Scapus very slender, somewhat heavier in the central part, moderately curved, four times as long as the succeeding segment; pedicellus scarcely half again as long as broad; segments of the funiculus cylindrical, almost equally broad, about three times as long as broad, except for the second and third segments which are somewhat longer than the others, with ciliation somewhat longer than the width of the segments; clava about as long as the preceding two segments together, the same width, pointed at the end with short ciliation.

Pronotum transverse, hidden under the rear part of the head. Mesoscutum twice as broad as long, light brown ciliation with long, sparse hairs. Scutellum triangular in shape, strongly arched, perceptibly longer mesoscuta with scattered light brown hairs. Propodeum very short, posticollateral corners bluntly indicated. Anterior wings long and broad, exceeding by half their length the end of the posterior; venation does not reach half the length of the anterior edge of the wing; submarginal vein in the distal fourth somewhat broadened and very slightly curved; cellula costalis perceptible, lamellated; marginal vein very strongly squarish; stigmal vein a little longer, triangularly broadening; postmarginal vein short, broad at the base, tapering off; speculum quite wide, going the whole width of the wing, with here and there scattered and very short hairs, almost lost from sight at times. Posterior wings reaching to half the length of anterior wings; venation exceeds half the length of the fore edge. Legs quite slender; rear femora are perceptibly heavy; metarsus of the second pair three times as long as broad, spur somewhat shorter. Abdomen quite flat, perceptibly shorter than the thorax; pygostyli shifted to the rear edge of the first abdominal tergite which exceeds one-third the length of the abdomen.

Localities in Czechoslovakia:

In addition to the places listed in the description of the species (Hoffer loc. cit.) this species was again found in large numbers in the region of the limestone massif of the Pavlovské kopce, in southern Moravia (Děvín July 2, 1952 two ♂♂, two ♀♀, Sv. Kopeček u Mikulova July 4, 1952 19 ♂♂, 11 ♀♀; ditto: July 7, 1952 two ♂♂, eight ♀♀; Klausen July 6, 1952 two ♂♂, one ♀). Lgt. et coll. Hoffer.

Semen politum n. sp.

Female:

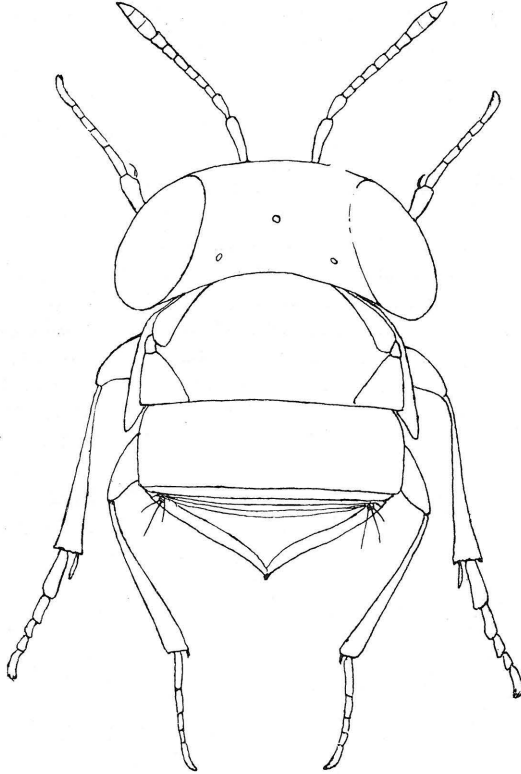
Size: 0.74—0.92 mm.

Black body. Antennae light brown. Legs and femura brown to blackish, tibiae brown, at the end lighter; tarsi yellowish brown, spur of the second pair much darker than the metatarsus. Projecting part of ovipositor brown.

Short habitus, broad (body is half again as long as broad), strongly arched; sculpture finely leathery, only on the head very fine and sparse dotting; entire surface of body strongly glistening.

Lens-shaped head, very short and broad, perceptibly broader than body; posterior edge ends sharply. Eyes very oval, longest diameter a little shorter than width of forehead; internal orbits set strongly forward. Broad, flat forehead. Ocelli small, set in an obtuse triangle, distance of two rear ocelli from internal orbits about the same as from the rear edge of the head. Antennae relatively slender and short; scapus cylindrical, moderately curving;

pedicellus twice as long as broad, a little longer than one third the scapus; segments of the funiculus slightly elongated, broadening slightly toward the end of the antennae, with sparse ciliation, hairs no longer than the width of segments; clava as long as preceding three segments together, scarcely thicker than the last segment of the funiculus.



3: *Semen politum* n. sp., female. General view.

Pronotum and entire mesoscutum covered under rear part of head; in normal position the most that is visible is the rear edge of the mesoscutum. Scutellum strongly developed, smooth, glistening, with very fine sculpture, forming round depressions; axillae at a considerable distance from each other, short; rear edge of scutellum broadly truncate. Metanotum and propodeum not perceptible. Mesopleurae large with shallow lengthwise furrows reaching to two thirds the length of the first abdominal segment. Rudiments of anterior wings form small triangular sclerites, only slightly larger than the relatively large tegulae, reaching to the end of the scutellum; tips set at a distance from each other of two and a half times their width. Legs relatively short and heavy, femura perceptibly thick; second metatarsus two and a half times as long as broad, perceptibly longer than the short, heavy spur.

- Abdomen, lying directly at the rear edge of the scutellum, is triangular, relatively short, a little longer than the thorax. First tergite three to four times as broad as long, other segments very short, with scattered heavy, short hairs. Pygostyli shifted over half the length of the abdomen. Ovipositor heavy, projecting very shortly. Sculpture of the abdomen similar to that of the thorax.

Male: Unknown.

Biology: Unknown.

Distribution: Czechoslovakia.

Localities in Czechoslovakia:

Slovakia mer.: Štúrovo (loess steppe at the southern foot of the Belanské kopce) July 6, 1947 (typus!); ditto: September 18, 1947 (paratypus). Lgt. et coll. Hoffer.

The differences between the two species of the genus *Semen* Hffr. are illustrated by the following table:

S. apterum Hffr.

Body normally arched, opaque.

Head as broad as the thorax in the broadest part.

Eyes slightly elliptic; internal orbits almost parallel.

Forehead has quite coarse and dense sculpture.

Ocelli closer to the rear edge of head than to internal orbits.

Scapus almost four times as long as pedicellus.

Entire mesoscutum very visible.

Scutellum triangular in shape, coarsely pitted, prolonged lengthwise, making the surface of scutellum furrowed lengthwise.

Triangular webbed rudiments of anterior wings reaching beyond each other at their ends.

First abdominal tergite about five times as broad as long.

All abdominal tergites slightly glistening with coarse sculpture of pits drawn out lengthwise.

S. politum n. sp.

Body strongly arched, glistens.

Head broader than thorax.

Eyes strongly elliptic; internal orbits going considerably forward.

Forehead almost smooth, very glistening, pitted sculpture almost imperceptible.

Ocelli as far from internal orbits as from rear edge of head.

Scapus almost three times as long as pedicellus.

Mesoscutum almost entirely covered under rear part of head.

Scutellum strongly developed, with rear edge broadly truncate, very shallow sculpture of round depressions.

At the end of small triangular black and glistening sclerites which are heavily reduced rudiments of the anterior wings, are very distant from each other.

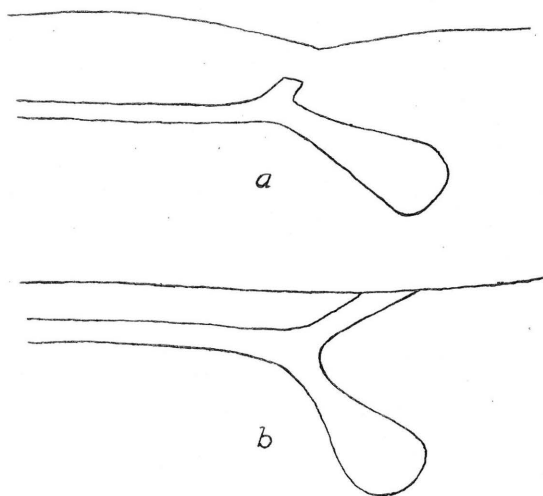
First abdominal tergite three to four times as broad as long.

Abdominal tergites strongly glistening, with finely indicated round depressions.

Genus *Rhinoencyrtus* Merc.

This genus was established by Mercet in 1918 (*Bol. Real. Soc. Esp. Hist. Nat. Madrid*, XVIII, p. 234—237) according to the genotype *Rh. malenottii* Merc., which was the only example known until now. This *Discodin*,

noted for the elongated lower part of the face between the antennae forming a humped projection, by the specific formation of the venation of the anterior wings, by the shape of the antennae and the sculpture of the body, was hitherto known only in the southernmost parts of Europe (Spain, Italy). Finding it on the territory of Czechoslovakia is therefore very interesting from the zoogeographical standpoint.



4: *Rhinoencyrtus malenottii* Merc. a: Detail of the venation according to specimens from Czechoslovakia; b: the same area according to Mercet.

All Czechoslovakian specimens completely correspond, and therefore clearly belong to a single species; as opposed to the original diagnosis they show, however, some differences probably caused by the natural variability of the species, for example a geographical variability and perhaps imprecise description. Therefore we consider our specimens as identical with the species *Rh. malenottii* Merc. It would be appropriate to compare it with a type from the South European material (to which we unfortunately do not have access).

***Rhinoencyrtus malenottii* Merc.**

The Czechoslovak specimens differ from the description of Mercet (or his illustrations) in the following characters.

Bluish green head with fiery reflections, apical part of scapus and underpart yellowish brown; coarsely pitted forehead (so densely that the pits almost touch each other); male has dark blue coloration of head, shallower sculpture, more glistening. Cheeks (for the ♀) shorter than the lengthwise diameter of the eyes. Distance between the axillae of the female equals their width, in the male it is substantially greater. Stigmal vein strikingly longer than the very short rudimentary postmarginal vein which does not reach the

edge of the anterior wing (compare with Illustration No. 2, Mercet, page 236, and his diagnosis of the species *ibid.* page 234: "nervio estigmatio un poco mas largo que el postmarginal"). The coloration of the thorax of the female is also wider in our specimens (pronotum and mesoscutum bluish green, scutellum dark blue).

Localities in Czechoslovakia:

Slovakia merid.: Kováčovské kopce (steppe on eruptive rock) July 3, 1947 one ♂; July 15, 1947, two ♂♂, two ♀♀.
Slovakia orient.: Sv. Mária-Rad (sand dunes) July 17, 1951 one ♀.

Genus *Copidosoma* Ratzb.

This genus is represented in our fauna of the *Encyrtides* by a whole series of species which are more or less similar, requiring very intensive study for their revision. Since these are forms which develop polyembryonically in caterpillars of butterflies numerous species also have considerable practical significance.

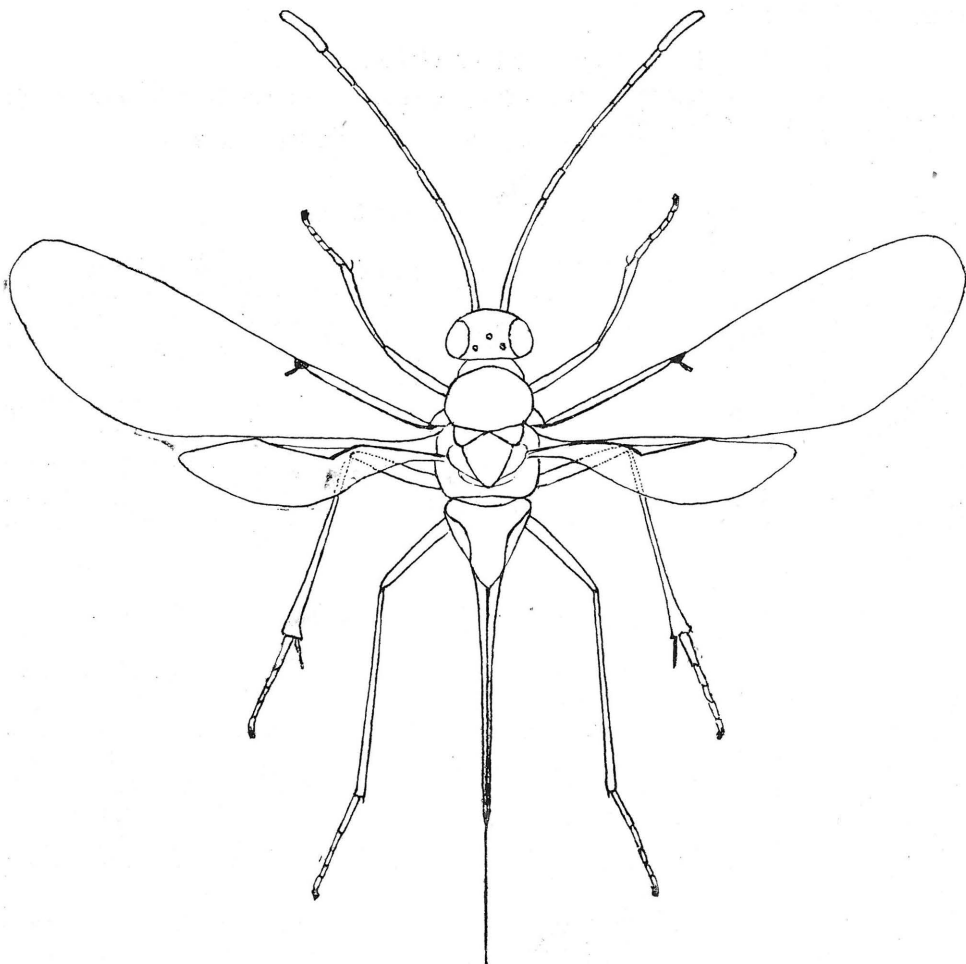
We shall here delineate two species in a preliminary way which differ from each other markedly in size and structure of body. The first of these was found as long as 100 years ago in Germany but has remained without description until now. (*C. cultriforme* n. sp.), the other one which I describe below under the name of *C. giganteum* n. sp., is related to the species *C. terebrator* Mayr.

Copidosoma cultriforme n. sp.

As early as 1856 (*Hymenopterologische Studien* II, p. 36). Förster in mentioning the species *C. bouchéanum* Ratzb. notes that he had obtained one specimen for examination, called *Encyrtus cultriformis* v. Heyd., which he considered as an ordinary specimen of the above-mentioned Ratzburg species. Mayr also had this specimen in hand when 20 years later he mentioned it again in his famous monograph of European Encyrtides, again in connection with the species *C. bouchéanum* Ratzb. He describes it as an exceptionally large specimen with projecting abdomen, giving for it a total size of 3.5 mm of which the rear takes 2.4 mm (including the 1 mm long ovipositor). In his above-cited work Mayr describes this specimen one page 736 in the following words: "Das Heyden'sche Stück, welches an einem Pappelstamme gefangen und von Herrn Senator v. Heyden *Enc. cultriformis* benannt wurde, ist durch den enorm langen Hinterleib ausgezeichnet, doch möchte ich darauf kein besonderes Gewicht legen, weil es scheint, daß der Hinterleib mit der Pincette so lang gezogen wurde".

In the most abundant and naturally most interesting locality of South Bohemia, the Borkovice marshes near Soběslav, which unfortunately have been recklessly destroyed at the present time, I found one female when clearing away the underbrush, differing from all specimens of the species *C. bouchéanum* Ratzb. which we have at our disposal, in a way which Mayr recalls in treating the specimen of von Heyden. When we study this specimen

in detail we come to realize that it is a clear species sufficiently characterized especially by the slender antennae, the relatively longer scapus, the unusually long abdomen, the foliate pressure of the sides, and finally, in size and colo-



5: *Copidosoma cultriforme* n. sp., female. General view.

ration. It is not a question here of an artefact, as Mayr supposed. In view of the very similar structure of the body of the two related species we consider it necessary to give their precise differentiation below.

Distribution: Germany, Czechoslovakia.

Locality in Czechoslovakia:

Bohemia merid.: Borkovice marshes (Soběslav district) August 18, 1954, one ♀ (typus). Lgt. et coll. Hoffer.

Comparative table ♀♀ of the Species *C. cultriforme* n. sp. and *bouchéanum* R a t z b.:

C. cultriforme n. sp.

Size (including ovipositor): 3.96 mm., of which the ovipositor is 0.74 mm.

Coloration of body metallic bluish green with golden red reflections in places (especially on the head and at the end of the scutellum).

Relative ratios (expressed in micrometric portions) of the length of the thorax, abdomen and ovipositor: 47:102:40.

Relative lengths of scapus, pedicellus, segments of the funiculus (altogether) and clava: 25:5.5:45:16.

Average lengths and widths of some segments (in micrometric portions):

	length:	width:
scapus:	25	1.45
3rd segment of funiculus	7.1	1.2
6th segment of funiculus	5.8	2
clava:	16	2.6

Basal fourth of abdomen sharply narrowing so that distal $\frac{3}{4}$ s are foliately pressed from the sides.

C. bouchéanum R a t z b.

Size 3.54—3.67 mm., of which the ovipositor is 0.58 to 0.71 mm.

Head metallic green, predominant colour of thorax bronze.

The same ratios: 50:86:29.

The same ratios (average): 22:5:44.5:15.

The same ratios: (average):

	length:	width:
scapus:	22	1.9
3rd segment of funiculus	7	1.6
6th segment of funiculus	5.7	2.8
clava:	15	3

Basal part of abdomen gradually narrowing so that only the distal half is foliately pressed from the sides.

Copidosoma giganteum n. sp.

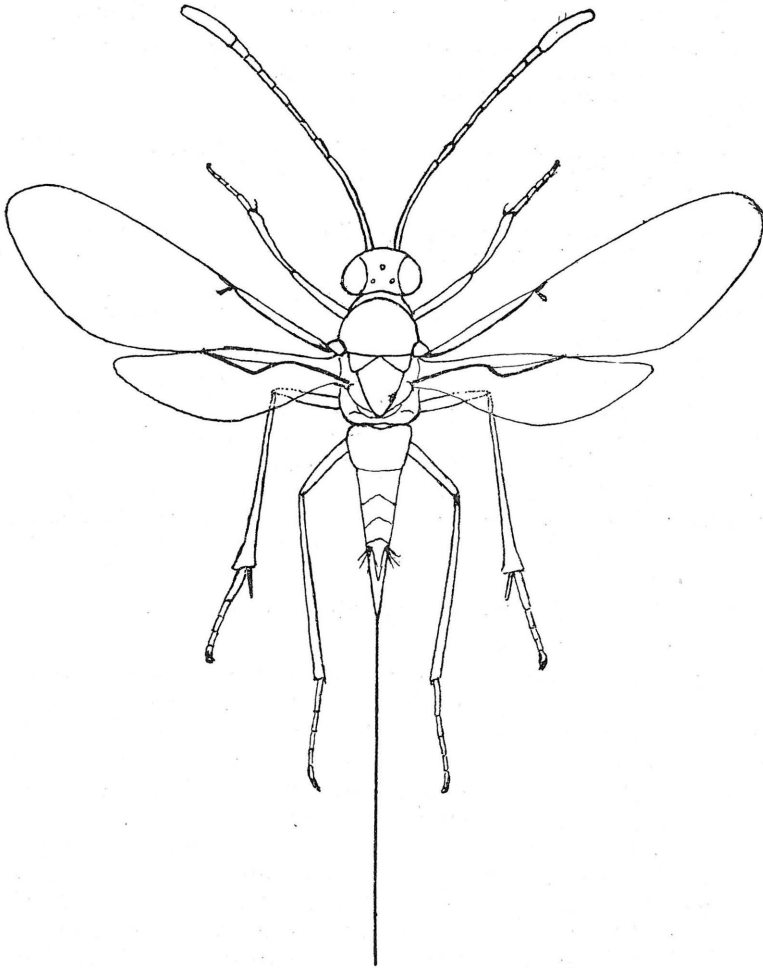
F e m a l e:

Size (of the three known specimens), including the ovipositor: 4.83, 5.47, and 5.73 mm; of which the ovipositor is 2.25, 2.57 and 2.89 mm (the greatest of the hitherto known palaearctic species of the family).

Head metallic green with coppery sheen, only in the neighbourhood of the oral aperture blue; pronotum and mesoscutum green with coppery tinge; tegulae in basal part white, in distal part brownish; scutellum golden yellow to metallic reddish yellow; abdomen blackish brown, strongly glistening, with metallic green and bronze reflections in basal part. Antennae blackish brown to black, scapus somewhat greenish. Eyes and ocelli reddish brown. Venation of the veins yellowish brown, marginal vein and postmarginal perceptibly darker. Legs, including the entire femora, yellow, central tibia moderately brownish, rear tibia with the exception of the yellow basal sixth, blackish brown, tarsi brownish, only the metatarsi and spurs perceptibly lighter. Ovipositor blackish brown. Sculpture of the head finely, very densely dotted; pronotum and mesoscutum with moderately elongated areoles which touch and are rounder and smaller on the scutellum; smooth abdomen, glistening, finely netted.

Arched head almost half spherical, only a little narrower than the thorax. Slightly elliptic eyes, narrower than the forehead in the transverse diameter; very small temples but well developed. Ocelli set in a slightly obtuse

triangle; rear ones separated from the internal orbits by a distance equal to their diameter, from the rear edge of the head by double the distance. Long, slender antennae; cylindrical scapus, slender, four times as long as the follow-



6: *Copidosoma giganteum* n. sp.; female. General view.

ing segment; pedicellus three times as long as broad, at the end as wide as the scapus; first segment of the funiculus longer than the pedicellus, perceptibly narrower, second segment as long, slightly broader; the succeeding segments in the direction of the end of the antennae gradually shorter and wider; ovoid clava somewhat broader than the preceding segment, shorter than the three last segments of the funiculus taken together; relative ratios

of all segments of the antennae expressed in the micrometric portions: 24 : 6 : 7 : 7 : 6.1 : 6 : 5.3 : 5 : 13.5, with a corresponding width of scapus of 2, first segment of the funiculus 1.7, last segment of the funiculus 3, and clava 4.

Short pronotum, strongly transverse; mesoscutum one-third broader than long; scutellum equally long, arched, with quite short axillae. Posticolateral corners of the propodeum rounded off. Wings long, exceeding the end of the abdomen (but not the ovipositor) by scarcely one-fourth their length; venation extending slightly beyond one-third of the anterior edge of the wing; submarginal vein very slightly curved; marginal dot-shaped; stigmal vein short, even, only slightly broader in the distal part than at the base; postmarginal vein somewhat shorter, the entire disc densely ciliated with fine hairs except for the narrow speculum; marginal cils short. Posterior wings two-thirds the length of the anterior. Slender, long legs, tarsi very long, central metatarsus seven times as long as broad, rear metatarsus ten times as long as broad, spur of the central tibia reaches only two-thirds the length of the metatarsus.

Abdomen perceptibly, but not very much, longer than the thorax; first abdominal tergite as much as a fourth broader than long; pygostyli at the end of the second third of length of abdomen. Ovipositor very long, about twice as long as the abdomen.

Male: Unknown.

Biology: Unknown.

Distribution: Czechoslovakia.

Locality in Czechoslovakia:

Bohemia merid.: Borkovice marshes (Soběslav district) August 6, 1954, two ♀♀, August 18, 1954 one ♀ (typus!). Lgt. et coll. Hoffer.

In structure of body, size and length of ovipositor this species resembles to a considerable extent the species *C. terebrator* Mayr, from which it differs, however, in a number of characteristics. Since Mayr's species is known to me only in the short original diagnosis, I can make a comparison of the two species only in those characteristics which are mentioned in the diagnosis. Nevertheless the differences in coloration and in ratio of the segments of the antennae are so striking (although individual characteristics in all three of our specimens are completely constant), that a differentiation made in this way will suffice.

Comparative table of the species *C. giganteum* n. sp. and *terebrator* Mayr:

C. giganteum n. sp.

Head and thorax metallic green with coppery sheen; scutellum more golden.

Entire antennae, including pedicellus, black.

Legs yellow, including femora, only the rear tibia (with the exception of a yellow basal sixth) blackish brown.

Pedicellus perceptibly shorter than first segment of the funiculus.

C. terebrator Mayr.

Head and mesoscutum bluish green, scutellum harsh green.

Antennae brown with bluish-green scapus and yellow pedicellus.

Legs yellow with green central and rear femora.

Pedicellus longer than first segment of the funiculus.

The two above described species, found in the same locality, belong to the hitherto largest known form of the genus *Copidosoma* R a t z b. and of the family *Encyrtidae* in general.

Genus *Litomastix* T h o m s.

We may say the same of this genus, which has the greatest number of species of any in the family *Encyrtidae*, as we said of the preceding genus. The especially great amount of material, gathered to date, will be elaborated in another place.

The sole species which we shall describe for the time being, is absolutely individual in structure of body and is a generically untypical *Copidosomine* species of which it is difficult to decide whether it is a representative of this genus or of the gen. *Copidosoma* R a t z b. Clava of this species is very obliquely truncate from the very end of the basal fourth, so that it gives the impression of an elongated exercise club; also the short and broad segments of the funiculus, with coarser ciliation, point to the genus *Lithomastix* T h o m s. The abdomen is, however, markedly elongated, pointed, running out into a lengthwise medial keel on the dorsal and ventral side, with pygostyli shifted only a little forward, as we see in some typical representatives of the genus *Copidosoma* R a t z b.

This species was also discovered in the naturally rich and very individual region of the Šumava bogs with original growth of *Pinus mugo* ssp. *uncinata*, which no longer exist today (flooded by the Lipno dam). The species described below is, that is to say, one of the evidences of the one-time riches of the ecologically narrowly limited forms dependent on the memorable location of marsh flora, scattered along the upper reaches of the Vltava condemned, to extinction, unfortunately.

Litomastix moldavicus n. sp.

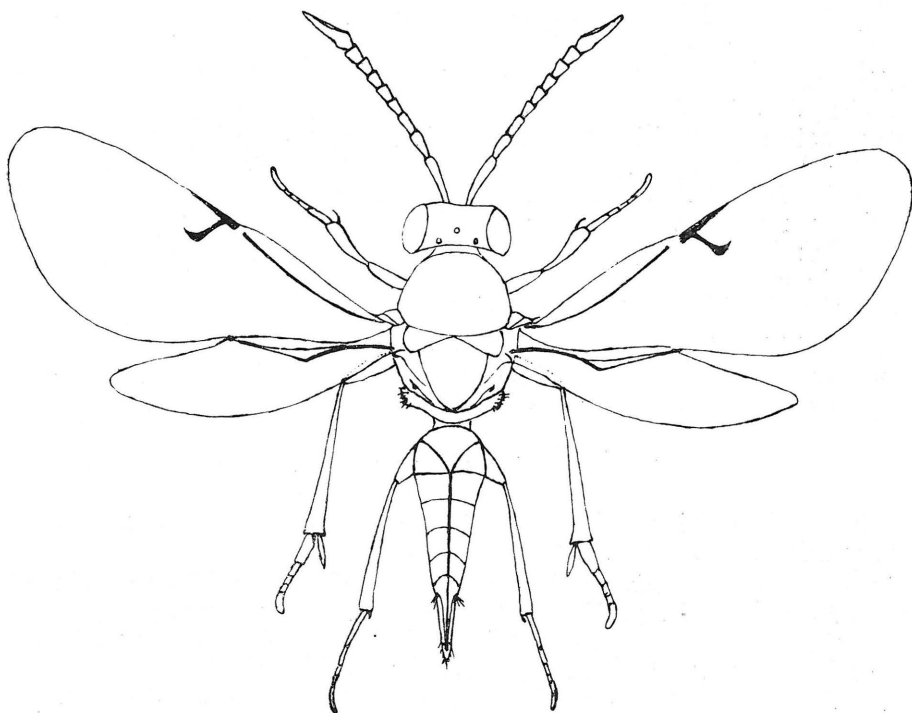
F e m a l e :

Size: 2.0 mm.

Head, pronotum and mesoscutum metallic greenish black, scutellum dark bronze; propodeum and tegulae dark brown; abdomen coppery, strongly glistening. Antennae brownish black. Eyes and ocelli brown, partially reddish. Femora of anterior pair of legs brownish black, yellow in distal part, completely dark posterior femura; anterior tibiae dark brown (except for yellow knees), middle ones light brown, rear ones black (except for yellow basal fifth); fore and hind tarsi mostly dark, almost black, middle ones brown, metatarsus always lighter; spur of middle tibiae white. Clear wings; venation yellowish brown.

Head very short, scarcely as broad as the thorax, with rear edge sharply indicated; sculpture densely, finely and relatively shallowly pitted, glistening. Eyes relatively small, with internal orbits not converging; temples insignificant. Forehead twice as broad as transverse diameter of the eyes. Ocelli set in markedly obtuse triangle; rear ocelli set at a distance from internal orbits which is somewhat greater than their diameter, but at a much smaller

space from the rear edge of the head. Antennae quite short, heavy; scapus cylindrical, about two and a half times as long as the succeeding segment; pedicellus almost twice as long as it is broad at the end; first segment of the



7: *Litomastix moldavicus* n. sp.; female. General view.

funiculus a little narrower, half again as long as broad; next segments gradually shorter, slightly broadening, so that the fourth and fifth segment seem about as long as broad, sixth segment very slightly transverse; clava undivided, about as long as the three segments preceding it, in basal fourth as wide as preceding segment, parallel, in distal three fourths truncate to long point, so that it takes on the form of an elongated exercise club.

Pronotum very short. Mesoscutum somewhat broader than long, with dense, shallow and round pits, glistening. Scutellum a little shorter, very strongly arched, glistening with shallowly netted sculpture. Propodeum has posticolateral corners indicated as obtuse angles, with sparse tufts of long, dark hairs. Anterior wings broad, extending beyond a fourth of the length of abdomen; venation does not extend to half the length of the wing; submarginal vein even, shortly broken off at the end; marginal vein squarish, slightly longer than broad; stigmal vein moderately long, even, widening at the end, curving markedly away from the fore edge of the wing; postmarginal

vein slightly shorter; ciliation of disc very fine, quite dense, except for the basal fourth, which is almost bald; cellula costalis quite broad; speculum narrow; marginal cils not very long. Posterior wings extend as far as two thirds the length of the anterior ones. Slender legs, not very long; rear femora perceptibly thicker; metatarsus of the middle pair of legs relatively short, three times as long as broad; pertinent tibial spur equally long hind tibiae with dense (specially in distal part), slender spurs.

Abdomen somewhat longer than the thorax, but much narrower, slenderly triangular; dorsal and ventral side extend in medial lengthwise keels, arched sides; smooth surface, highly glistening. First six segments of the abdomen, transverse, long, parallel, almost equal in length; pygostyli shifted only toward end of third fourth of total length of abdomen. Slightly projecting part of ovipositor very heavy.

Male: Unknown.

Biology: Unknown.

Distribution: Czechoslovakia.

Locality in Czechoslovakia:

Bohemia merid.: Šumava: Hůrka v Pošumaví (marshy formations at elevation of about 750 metres). July 23, 1954, one ♀ (typus!). Lgt. et coll. Hoffer.

Synonymical Notes

Thomsonisca Ghesq. (= *Thomsoniella* Merc.), *Athesmus* Erd. & Nov. and *Heterencyrtus* Hffr.

The genus *Thomsonisca* Ghesq., first established by Mercet in 1921 (*Fauna Ibér. Fam. Encirtidos*, p. 89) and called by the preopted name of *Thomsoniella* Merc. (nec. Sign.), was redescribed by Ferrière in 1955 (*Mitt. Schweiz. Entom. Ges.*, XXVIII, p. 131) on the basis of specimens obtained by rearing of the coccid *Pseudococcus vovae* Nass. in Bavaria. On the basis of this redescription, which makes markedly more precise the original diagnosis by Mercet, no substantial generic differences can be found from the recently established genus *Athesmus* Erd. & Nov. It is a pity that the authors do not describe in their diagnoses the shape of the mandibles; we may presume, however, that the number of teeth will be the same as given by Ferrière for the genus *Thomsonisca* Ghesq. The genus *Heterencyrtus* Hffr., established by the author in 1953, is also related to the two above-mentioned forms which, together with the still more primitive genus *Anomalicornia* Merc., form the tribe *Anomalicornini* Hffr., clearly characterized by the structure of the male antennae. The genus *Heterencyrtus* differs from the genus *Thomsonisca* Ghesq. to which it has markedly related features (for instance the same shape of antennae), by the perceptible mandibles, ending in a single sharp external tooth and a broad internal hump, furthermore by a heavy marginal vein, an elongated posterior and much projecting ovipositor.

Anagyris securicornis Dom.

This species was described by Domenichini in 1953 (*Estr. Boll. Zool. Agr. Bachicolt.* XXIX, pp. 56—61) for much the greater part according

to Austrian specimens; the author utilized the name which Förster used to designate the oldest finding of a male and female. In the same year (a few months later) the same species was described by Hoffer according to specimens coming from various places in Bohemia and Moravia, under name *A. bohemicus* Hffr.

Hoplopsis mayri Dest.

Syn: *Mayriella erdösi* Hffr. (*Ochr. Přír. VIII*, p. 88, 1953).

Aphyculus zavadili Hffr. and *Aphyculus perparvus* Hffr.

Both these species were described by Hoffer in 1954 (*Ochr. přír. IX*, p. 169 and *Acta Soc. Entom. Čechosl. LI*, pp. 106—109). In the following year Erdős issued a publication (*Acta Zool. Acad. Sci. Hung. I*, pp. 197—8), in which he described the species *A. zavadili* Hffr, in both the macropteris and brachypteris form. These forms Hoffer considers as the independent, afore-mentioned species, of which the former is always macropteris, the second brachypteris. Some facts can help to clarify this question. In the first place the macropteris species usually has a somewhat longer ovipositor and longer, more slender legs than the micropteris species (this latter difference Erdős had also noticed); there are, therefore, slight but constant differences between the two species. On the other hand we must realize that often in the species of this family the micropteris forms are more or less different morphological from the macropteris forms, primarily in the structure of the mesoscutum, the size of the ocelli and the length of the legs, sometimes also in the form of the antennae. Therefore the criteria given for both species of the genus *Aphyculus* Hffr. have only an approximate value. A more important instance is, however, the fact that both species were found together in nature only in quite exceptional cases and usually only one or the other species is found in a certain locality (cf. enumeration of where they are found in Czechoslovakia). Also the proportional incidence of the macropteris and brachypteris forms of this genus do not correspond to the distribution of winged and short-winged individuals of these species from which both forms usually come. The macropteris forms of the usually micropteris species are always quite rare and are found as a rule with micropteris individuals. This is decidedly not true, however, for both our forms of genus *Aphyculus*. To this is added the existence of the macropteris male besides the micropteris males, while in other brachypteris species of this family we note in the males either the brachypteris alone, or the exclusively macropteris forms. I therefore consider both forms which Erdős ascribes to the species *A. zavadili* Hffr., as clearly independent species.

Platencyrtus Ferr. and *Platyencyrtus* Erd. & Nov.

Both genera were described by the authors in the same year and based on material obtained in the same way (by rearing of Scale Insects in rushes). The work by Ferrière (*Bull. Soc. Entom. France, LX*, pp. 11—12), appeared in January 1955, while that by Erdős—Novický (*Beitr. z. Entom.*, V, p. 197) was five months later. Diagnoses of both these genera have a great number of common characteristics. I found no substantial difference in the two diagnoses which could be used as a generic criterium.

Blastothrix truncatipennis Ferr.

This species was described by Ferrière of Bavaria in 1955 (*Mitt. Schweiz. entom. Ges.*, XXVIII, p. 127) and classified in the genus *Mictoterys* Thoms. A little later Erdős described the same species from the High Tatras (*Acta Zool. Acad. Sci. Hung.*, I, pp. 209—211) and called it *Microterys tatricus* Erd. Our specimens from the Krkonoše Mountains, the Šumava region, the Borkovice marshes and the High Tatras clearly show that it belongs to the genus *Blastothrix* Merc., and was the basis for the diagnosis (*B. beatricis* n. sp.) which was taken out of print after the work by Ferrière appeared.

Microterys contractus Hffr.

In 1954 Hoffer (*Acta Soc. Entom. Čechosl.*, L, p. 166) described the species *Paraphaenodiscus contractus* Hffr., according to two specimens (♂ and ♀), strongly brachypterous in form. Not until the winged female was found later was it possible for us to classify this species correctly. In 1955 Erdős (*Acta Zool. Acad. Sci. Hung.*, I, pp. 208—209) described the species *Microterys budensis* Erd., which is identical with the species *M. contractus* Hffr.

Boučekiella depressa Hffr.

This interesting genus and species, living in the rushes of the warm regions of Central Europe, is a parasite of the coccid *Chaetococcus phragmitis* March., and was described and illustrated three times in the course of two years. It was first described by Hoffer in 1954 (*Ochr. přír.* IX, p. 172) from southern Slovakia; in the next year it was described by Erdős (*Allat. Közlem.*, XLV, p. 48) from Hungary and in the same year described also by Ferrière (*Bull. Soc. Entom. France*, LX, p. 9—10) from France, with the name *Urotyndarichus antoninae* Ferr.

Further synonymical notes will be included from time to time in separate articles.