

CONTRIBUTION TO THE KNOWLEDGE OF THE ENCYRTID FAUNA
OF THE KOMODO AND PADAR ISLANDS WITH A CATALOGUE OF
INDONESIAN SPECIES (HYMENOPTERA, ENCYRTIDAE).

by

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In the year 1962 herpetologist Dr. I. S. DAREVSKY (Zoological Institute) took part in the Indonesian-Soviet biological expedition to study the biology of the giant monitor. During his stay in the group of islands of Komodo he collected several interesting species of chalcidoid parasites of the family Encyrtidae. Studies of this family of Chalcidoidea are of especially great importance in tropical countries, from which places many cases of successful control of injurious coccids are reported after Encyrtids being introduced. Moreover, according to world experience, most of the striking successes were achieved by acclimatisation of useful species in the tropical islands. Therefore the investigation of the encyrtid faunas of different islands of Indonesia is not only of theoretical but also of practical significance. Unfortunately, Encyrtidae of Indonesia are studied quite insufficiently: only 36 species of this family were reported from this country up to now. Real number of Indonesian species of encyrtids might run to be as big as several thousands. This statement is based on the equatorial position of the country and the existence of vertical zones of vegetation in the mountains.

In the present paper three new species of Encyrtidae from the Komodo and Padar Islands are described, as well as *Callipteroma testaceum* MOTSCHOUJSKY which was formerly known only in Ceylon. Besides, Dr. DAREVSKY collected there *Mercetencyrtus ambiguus* (NEES) distributed in Palaearctic region from Spain to Vladivostok and from the shores of the Baltic Sea to the South Tajikistan. A catalogue of Indonesian Encyrtidae is given as a supplement to the article.

The author wishes to express his sincere thanks to Dr. I. S. DAREVSKY for the collection of the material and Drs. E. S. SUGONJAEV, V. I. TOBIAS (Zoological Institute) and Mr. A. P. RASNITSYN (Palaeontological Institute, Academy of Sciences of the USSR, Moscow) for their valuable advice.

Types of the new species are preserved in the collection of Zoological Institute, Academy of Sciences of the USSR, Leningrad.

Genus *Doliphoceras* MERCET

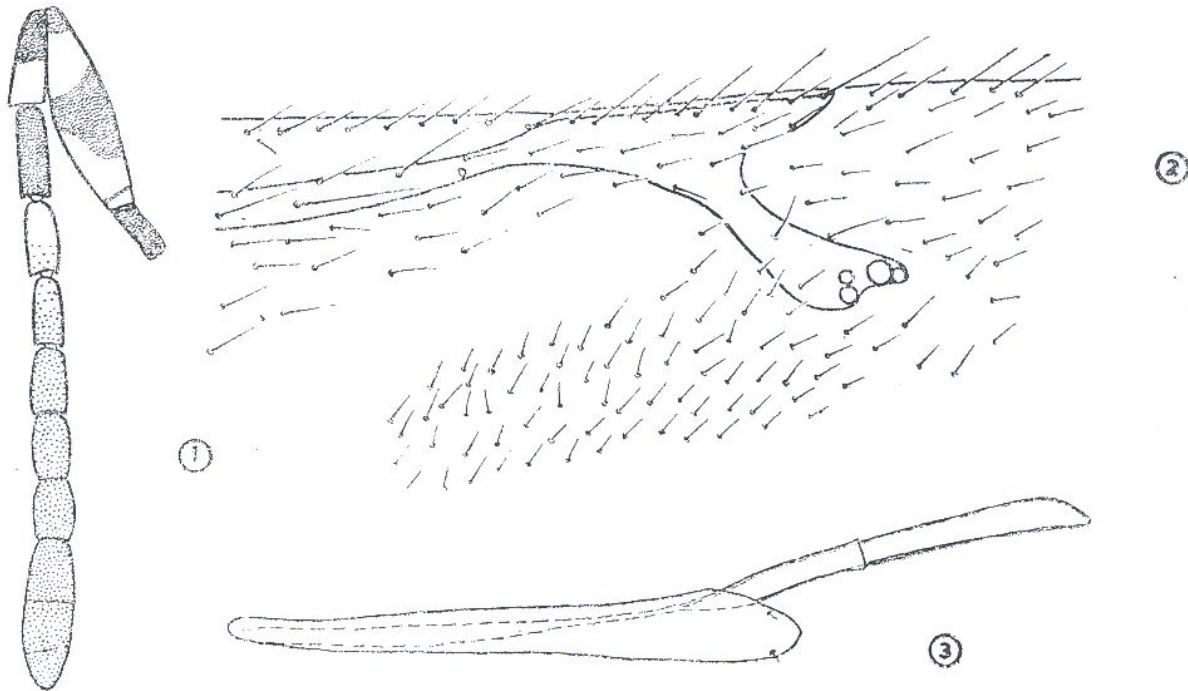
MERCET, 1919, Bol. Soc. Esp. Hist. Nat., 19: 99 (*Pholidoceras*). — MERCET, 1921, Fauna Ibérica, Him. fam. Encírtidos: 91-95, 686-688. — NIKOLSKAYA, 1952, Chalcids of the fauna of the USSR: 340. — ALAM, 1958, Trans. R. Ent. Soc. London, 109 (15): 450, 453. — LIAO, 1961, Rev. Ent. USSR, XL (1): 147-152.

Doliphoceras darevskii TRJAPITZIN, sp. n.

Female. Body elongate, slightly flattened. Head hypognathic, as wide as high and little wider than thorax. Minimum width of vertex little less than half the width of head (13-14: 32). Frontovortex in the middle slightly longer than minimum width of vertex (15: 13-14). Occipital margin slightly concave. Inner margins of eyes slightly converging to vertex. Ocelli forming a right-angled triangle. Lateral ocelli little more than their diameter from eye and about as far or little less from occipital margin. Facial depression developed, its upper and lateral margins smoothly rounded. Distance (in vertical direction) from upper margin of facial depression to apex of vertex about one third the height of head. Scrobes converging upwards at an angle of 30° to 50°; above they run almost parallel and do not unite. Interantennal elevation of the face more or less caved in above. Antennae (fig. 1) attached just below the level of ventral eye margins, upper margins of antennal sockets being above this level. Antennal sockets little less apart as from eye and twice or little less apart as from mouth border. Malar space less than three times shorter than eye (8: 21). Mandibles two-toothed. Pronotum transverse, with distinct, almost right anterior angles and smoothly concave hind border. Mesonotum nearly flat, without parapsidal grooves. Inner angles of axillae meeting, but point of their touch can be concealed under the hind border of mesonotum. Scutellum flat, somewhat longer than mesonotum, approximately as long as wide. Anterior wings long, little less than three times longer than their greatest width. Costal cell narrow. Venation of anterior wing as in fig. 2. Mesotibial spur shorter than middle basitarsus (3: 4), the latter being as long (or nearly so) as other tarsal segments combined. Propodeum extremely short in the middle. Abdomen (in dry condition) little longer than head and thorax combined. Pygostyli are not far from the base of abdomen. Seventh sternite tri-

angular, produced posteriorly beyond the apex of abdomen. Ovipositor sheaths thick, their exerted part about $\frac{1}{2}$ - $\frac{3}{4}$ length of middle tarsus.

Body mainly brownish-orange-yellow, dorsal side of head, of thorax and sometimes of abdomen being more obscure and ventral side of the body more clear; legs are more clear as well. Dorsal part of pronotum except humeral areas, mesonotum except scapular areas, axillae except outer parts, scutellum, propodeum and abdomen dorsally can be yellowish-black-brown. Between each torula and eye margin a transverse black spot is present. Each cheek below with a black spot reaching in front the mouth margin; on the hind surface of the head, spots bend towards



Figs. 1-3. *Doliphoceras darevskii* TRJAPITZIN, sp. n.
1— antenna of ♀ (holotype) (x 50); 2— venation of anterior wing of ♀ (holotype) (x 200); 3— phallus (x 100).

the occipital aperture and surrounding it at both sides, form two broad obscure stripes, which unite apparently above the aperture. Radicula of antennae, narrow and small transverse stripe near the base of scape, middle and apical parts of scape, basal half of pedicel and first funicular segment black; the rest of the scape, apical half of pedicel and second funicular segment (except its apex) whitish-yellow or yellowish-white. Second funicular segment at apex and all successive antennal segments dark-brown. Apices of tegulae darkened. Wings hyaline. Fifth tarsal segments at apex, apical part of seventh sternite and apical half of the projecting parts of ovipositor sheaths dark. Body surface finely

shagreened. Mesopleura with longitudinal sculpture. Head, dorsal side of thorax and tergites of abdomen (mainly lateral parts of these tergites) with rather dense minute white setae. Oblique bare stripe of the anterior wings barely reaching the hind margin of wing and broadly interrupted in its posterior half. Length (without ovipositor) 1.5 - 1.6 mm.

Male. Minimum width of vertex little more than half the width of head. Frontovortex in the middle shorter than minimum width of vertex (11: 15). Lateral ocelli little less than their diameter from occipital margin. Distance (in vertical direction) from upper margin of facial depression to apex of vertex little more than one third the height of head. Antennae long, attached at the level of ventral eye margins; funicle cylindrical. Length ratio of antennal segments from radicula to club as 4: 15: 5: 12: 10: 8. 5: 8: 7. 5: 7: 15. Scape little less than four times longer than wide. First funicular segment about six times longer than wide. Apical part of last funicular segment below with 5 vertical bottle-like scales (sensillae) (similar to those of *D. integralis* MERCET); the author failed to discover such sensillae on the club. Malar space shorter than eye (9: 16). Phallus (fig. 3) without digital sclerites.

Face and cheeks without black markings. Radicula of antennae, apical $\frac{2}{3}$ of scape (except area below near apex) and pedicel (except apex) black. Basal third of scape and apex of pedicel rather dirty white-yellowish. Funicle and club of antennae black-brown. Maximum length of funicular hairs more than twice the width of the corresponding segment. Length 1.1 mm.

Padar Island, dry slopes of a gorge, caught by sweeping of *Imperata arundinacea*, 13, VIII. 1962, 1 ♀ (holotype) and 1 ♂ (paratype) (leg. I. S. DAREVSKY). Komodo Island, sea level, palm savanna (*Borassus*), caught by sweeping of *Imperata arundinacea*, 5, VIII. 1962, 1 ♀ (paratype) (leg. I. S. DAREVSKY). Antenna and anterior wing of the holotype in microscopic slide No. 1067.

The species is dedicated to Dr. I. S. DAREVSKY.

The new species differs from all described species of the genus *Doliphoceras* (7 Palaearctic and 1 Madagascarian) in the clear body colouring and the not uniformly coloured antennae. Body of other species is uniform black in colour and only *D. flavoscutata* has yellow mesonotum. The insertion of *D. darevskii* sp. n. into the genus *Doliphoceras* was based by the study of male genitalia. It is known, that the phallus of *D. integralis* (MERCET) is devoid of digital sclerites (LIAO, 1961), which is rather uncommon for chalcids. Digital sclerites are absent also on the phallus of the Indonesian species (fig. 3).

Hosts are known only for the following four species of *Doliphoceras*: *D. pseudococci* ALAM was reared from mealybug *Pseudococcus newsteadi* GREEN on *Fagus sylvatica* in England (ALAM, 1958), *D. niger* ISHII is parasitic upon *Balanococcus* sp. on the roots of *Zoysia matrella* var. *tenuifolia* in Japan (TACHIKAWA, 1963 a, b), *D. solani* RISBEC infests *Pseudococcus* sp. on *Solanum* sp. in Madagascar (RISBEC, 1957), *D. integralis* (MERCET) was reared in the Leningrad region (USSR) from *Pseudococcus* sp. on an undetermined gramineous plant (SUGONJAEV, 1962). Also *D. darevskii* sp. n. parasitizes most probably on some kind of mealybugs living very likely on the gramineous plant *Imperata arundinacea*.

Genus *Callipteroma* MOTSCHOUJSKY

MOTSCHOUJSKY, 1863, Bull. Soc. Imp. Nat. Moscou, XXXVI (3): 35-38. — MERCET, 1921, Fauna Ibérica, Him. fam. Encirtidos: 115-116. — MERCET, 1924, Bol. R. Soc. Esp. Hist. Nat., 24: 252-260. — NIKOLSKAYA, 1952, Chalcids of the fauna of the USSR: 345-346. — TACHIKAWA, 1963, Mem. Ehime Univ., Sect. VI (Agr.), 9 (1): 52-53.

Callipteroma testaceum MOTSCHOUJSKY

MOTSCHOUJSKY, 1863, Bull. Soc. Imp. Nat. Moscou, XXXVI (3): 37-38 (C. *testacea*).

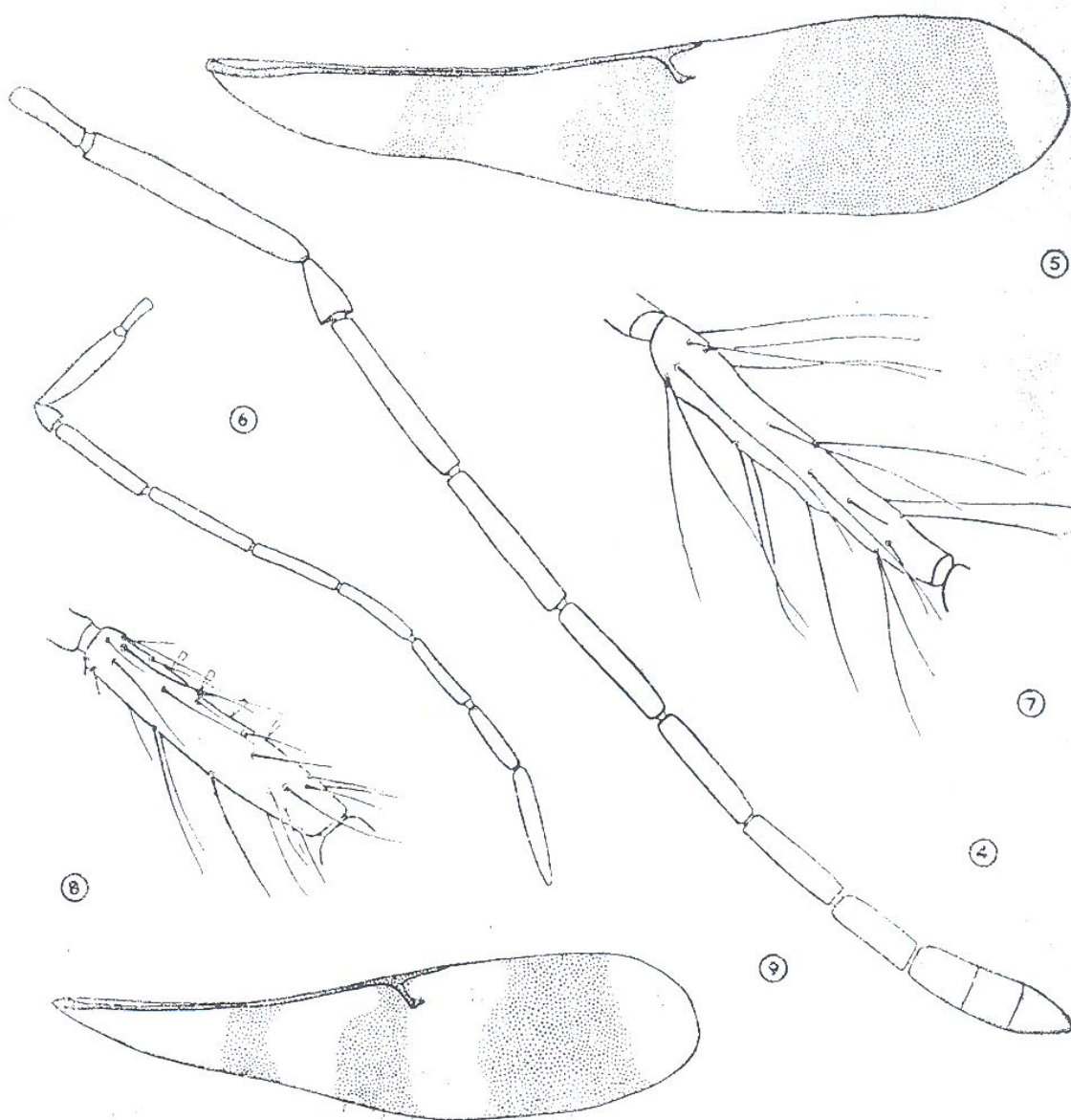
Female. Head little wider than thorax and approximately as wide as high. Inner margins of eyes slightly diverging to vertex. Frontovortex longer than minimum width of frons (27: 17). Minimum width of frons almost twice narrower than maximum width of head. Ocelli small, forming an equilateral triangle. Lateral ocelli to occipital margin as far apart as from eye. Distance from median ocellus to upper scrobe margin little less than half the height of head. Malar space four times shorter than eye. Scrobes not uniting above. A small shallow pit is present above the interantennal elevation of face. Antennae (fig. 4) attached just above the level of ventral eye margins. Antennal sockets as far apart as from mouth border and about two and a half times as wide apart as from eye. Mouth border smoothly concave. Mesonotum wider than long (29:19). Scutellum approximately as long as wide and shorter than mesonotum (14: 19). Anterior wing little more than four times longer than its greatest width (115: 27). Postmarginal vein of anterior wing little longer than radius (6: 5). Mesotibial spur little longer than middle metatarsus. Propodeum well developed, horizontal, consisting of two sclerites

which are separated in the middle by a membranous area*). In the middle, this membranous area is two and a half times shorter than scutellum and three times shorter than maximum length of propodeum. Lateral margins of the sclerites limiting the membranous area are divergent towards the apex of propodeum. Width of this membranous area at its base little more than one third the length of this area; width of the membranous area at its apex little more than its length and subequal to the transverse diameter of articulation aperture of propodeum. Borders of both sclerites of propodeum adjacent to its membranous area are raised and form two elevations continuing to the anterior borders of corresponding sclerites as well; each elevation limits a depression of sclerite from the outside. Abdomen (in dry condition) little longer than thorax. Median part of the first visible (third true) abdominal tergite forming an equilateral triangular lobe with acute apex. Ovipositor sheaths not exerted.

Head, radicula of antennae, scape, apex of pedicellus, lateral parts of pronotum, prosternum, bases of tegulae, apex of scutellum, membranous part of propodeum, legs, third true abdominal tergite, lateral lobes of fourth tergite and apex of abdomen light yellowish-brown, the third abdominal tergite being more pale. Apices of hind femora, hind tibiae (except bases), front tarsi and last segment of middle and hind tarsi darkened. Antennae (except parts cited above) brownish-black. Median part of pronotum, mesonotum, axillae, scutellum (except apex) and mesopleura dark-brown. Anterior wings dark-brown with two clear stripes (fig. 5). Posterior wings not infuscated. Sclerites of propodeum brownish-black with violet metallic lustre. Abdomen (except base and apex) dark with slight bronzy tint. Thorax dorsally with sparse white hairs, pressed to body surface. Sclerites of propodeum and third abdominal tergite with dense white hairs, elevations limiting inner borders of propodeum being bare. Apices of lateral lobes of third abdominal tergite and apex of its median triangular part almost bare. Frontovertex with cellular sculpture. Scutellum very finely striated longitudinally. Length about 1.8 mm.

*) Similar structure of propodeum, unusual for encyrtids, is characteristic for *Lutfia talitzkii* TRJAPITZIN, *gen. et sp. n., in litt.* from Moldavia and the Crimea and *Phasmocera kerzhneri* TRJAPITZIN, *gen. et sp. n., in litt.* (Rev. Ent. USSR, 45, 1966) from Kazakhstan. The former genus is related to *Metanotalia* MERCET and *Baeochoris* MAYR and the latter to *Anusia* FOERSTER; thus these genera belong to different tribes. However, the impressed median part of propodeum of *Lutfia* and *Phasmocera* is not membranous but more or less strongly sclerotized. Apparently, the described structure of propodeum can be found in encyrtids with strongly developed propodeum independently from their systematic position and must be regarded as convergent new formation.

Male. Head as wide as thorax and little higher than wide. Minimum width of frons about $\frac{5}{8}$ of maximum width of head and little less than the length of frontovertex. Ocelli larger than those of female. Lateral ocelli closer to occipital margin than to eyes (3: 4-5). Distance from median ocellus to upper scrobe margin little than one third the height of head. Malar space little more than a third the length of eye (3: 8). Antenna, third and last segments of its funicle and pattern of anterior wing as in figs. 6-9. Sixth funicular segment ventrally with 4 vertical



Figs. 4-9. *Callipteroma testaceum* MOTSCHOUJSKY
 4— antenna of ♀ (x 35); 5— anterior wing of ♀ (x 35); 6— antenna of ♂ (x 35);
 7— third funicular segment of ♂ (x 140); 8— last funicular segment of ♂ (x 140);
 9— anterior wing of ♂ (x 35).

bottle-like scales (sensillae). Abdomen (in dry condition) as long as thorax. Phallus without parameres, but with developed digital sclerites. Body colouring, sculpture and pubescence resembling those of female, body being more pale in colour. Antennae (except club, last and partly last but one funicular segments) and legs (except front tarsi and last segment of hind tarsi) not darkened. Abdomen mainly yellow-brown ventrally. Length 1.2 mm.

Komodo Island, sea level, palm savanna (*Borassus*), caught by sweeping of *Imperata arundinacea*, 5. VIII. 1962, 1 ♀, (leg. I. S. DAREVSKY). Padar Island, dry slopes of a gorge, caught by sweeping of *Imperata arundinacea*, 13. VIII. 1962, 1 ♂ (leg. I. S. DAREVSKY).

Callipteroma testaceum MOTSCHOUJSKY was described from a single female taken by J. NIETNER at the summit of Patannas Mountain in Ceylon. The author of the present paper had the opportunity of comparing the Indonesian specimens with the holotype, which is preserved in the Zoological Museum of the Moscow University. The holotype was kindly loaned to the author for the study by Dr. A. N. ZHELOKHOVTSSEV. *C. testaceum* is similar to *C. nigrum* MERCET (known only from the vicinities of Madrid in Spain) (MERCET, 1924) in having alternating clear and infuscated transverse stripes on the anterior wings. Similarly is also the pubescence of thorax of these species. Main differences between *C. testaceum* and *C. nigrum* are represented in the following table:

<i>Callipteroma testaceum</i> MOTSCHOUJSKY, ♀	<i>Callipteroma nigrum</i> MERCET, ♀
Last funicular segment of antennae more than twice as long as wide (8:3); scape cylindrical. Propodeum long (<i>see</i> description).	Last funicular segment of antennae only half longer than wide; scape slightly fusiform. Propodeum extremely short in the middle.
Main body colouring yellowish-brown, more obscure dorsally (<i>see</i> description).	Body, including antennae and legs, uniformly and intensively black in colour, only knees and tarsi being brownish; middle basitarsus yellowish-brown; mesotibial spur whitish.
Scutellum very finely striated longitudinally.	Scutellum with very fine transverse undulating striation.

The biology of the members of the genus *Callipteroma* is still not cleared up. It is possible, that they are endoparasites of mealybugs (Pseudococcidae) like the members of the related genus *Leptomastidea* MERCET. It is only clear at the present time that hosts of *Callipteroma* species live on herbaceous plants. The habits of *Callipteroma* are paradoxical: active insects hold their wings vertically upwards. This peculiar habit is known among Encyrtidae only in *Callipteroma* and *Dinocarsiella* and in somewhat different form in some species of *Leptomastidea*.

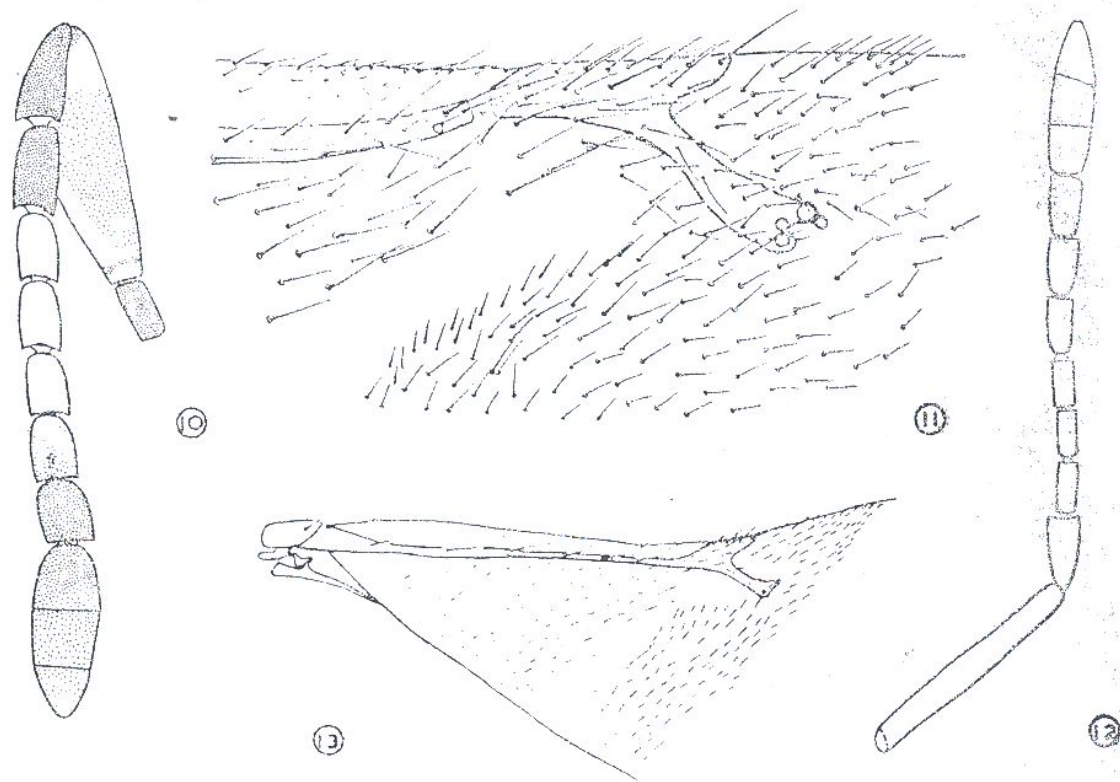
Genus *Anagyrus* HOWARD

HOWARD, 1896, Proc. U. S. Nat. Mus., 18: 638. — MERCET, 1921, Fauna Ibérica, Him. fam. Encyrtidos: 132-140. — TIMBERLAKE, 1924, Univ. Calif. Publ. Ent., 3 (2): 224-225. — ISHII, 1928, Bull. Imp. Agr. Exp. St. Japan, 3 (2): 84-92. — COMPERE, 1939, Bull. Ent. Res., 30 (1): 3. — TIMBERLAKE, 1941, Occasional Papers Bernice P. Bishop Mus., 16 (9): 218, 223. — COMPERE, 1947, Univ. Calif. Publ. Ent., 8 (1): 15. — NIKOLSKAYA, 1952, Chalcids of the fauna of the USSR: 348-351. — DOMENICHINI, 1953, Atti Soc. Italiana Sc. Nat., XCII: 67-75. — HOFFER, 1953, Ochr. Prir., 8: 85. — TACHIKAWA, 1963, Mem. Ehime Univ., Sect. VI (Agr.), 9 (1): 41-51.

Anagyrus hippocoon TRJAPITZIN, sp. n.

Female. Head as wide as thorax and little wider than high. Occipital margin slightly concave. Inner margins of eyes slightly converging to vertex. Minimum width of vertex less than half the width of head (3:7). Frontovortex in the middle somewhat shorter than minimum width of vertex. Apical angle of ocellar triangle little more than 90°. Lateral ocelli to eyes about their own diameter and considerably closer to occipital margin. Distance (in vertical direction) from upper margin of facial depression to apex of vertex about one third the height of head. Malar space approximately two and a half times shorter than eye. Facial depression deep, with rounded upper and lateral margins. Distance from the level of union of scrobes to the level of upper margins of antennal sockets about one third the distance from upper margin of facial depression to the level of upper margin of sockets. Nevertheless, scrobes continue upwards beyond the mentioned point of their union as two almost parallel pieces which are divided by weakly elevated bottom area of the upper part of facial depression. Length of these parallel pieces of scrobes more than half the distance between their bottoms. Antennae (fig. 10) attached just below the level of ventral eye margins, upper margins of sockets being above this level. Sockets twice as far apart as from mouth border; distance between sockets little more than that from each socket to eye. Mouth border slightly concave. Pronotum very short, with slightly (and smoothly) con-

cave hind border. Mesonotum weakly convex, two and a half times as wide as long. Inner angles of axillae meeting. Scutellum flat, as long as wide and half longer than mesonotum. Wings not dwarfed. Anterior wing about two and a half times longer than its greater width; venation of anterior wing as in fig. 11. Mesotibial spur shorter than middle basitarsus (7:10). Propodeum short, especially in the middle. Abdomen (in dry condition) as long as head and thorax combined. Exserted part of ovipositor sheaths little shorter than mesotibial spur.



Figs. 10-13. *Anagyrus hippocoön* TRJAPITZIN, sp. n. and *Ooencyrtus segestes* Trjapitzin, sp. n.

10— antenna of ♀ of *A. hippocoön*, sp. n. (holotype) (x 75); 11— venation of anterior wing of ♀ of the same species (x 200); 12— antenna of ♀ of *O. segestes* sp. n. (holotype) (x 75); 13— base of anterior wing of the same species (x 35).

Body orange. Radicula of antennae, broad stripe along lower margin of apical two-thirds of scape on its outer side, inner side of scape (except clear stripe along basal half of ventral side and except apical quarter), pedicel except apex, first and funicular segments and club brownish-black. Outer side of scape (except the obscure stripe mentioned above and darkened middle part), afore-mentioned areas of its inner side, apex of pedicel and last but one funicular segment dirty-yellowish-white. 2-4 funicular segments yellowish-white. Bases of tegulae yellowish, apices darkened. Basal two-third of anterior wings infuscated, costal cell and basal third being little cleaner; apical margin of this infuscation rounded.

Legs yellowish-brown, hind tibiae being more dark. Abdomen orange-brown or brown-orange. Exserted part of ovipositor sheaths orange-yellow. Head, dorsal side of thorax and base of abdomen with rather dense minute white hairs. Eyes pubescent. Base of anterior wing with dense and uniformly spaced setae. Oblique bare stripe interrupted at its base and at the end of basal half. Lower piece of the oblique bare stripe twice shorter than the upper one. Length (without ovipositor) about 1.05 mm.

Male unknown.

Padar Island, dry slopes of a gorge, caught by sweeping of *Imperata arundinacea*, 13. VIII. 1962, ♀ (holotype) (leg. I. S. DAREVSKY). Antenna and anterior wing of the holotype in microscopic slide No. 1068.

Anagyrus HOWARD is an extensive genus including already about 110 described species. All the species of *Anagyrus* are apparently parasitic on mealybugs (Pseudococcidae). *A. hippocoon* sp. n. — the first representative of this genus discovered in Indonesia and to all appearance the only known species with infuscated anterior wings. Type of colouring of antennae of the new species is extremely similar to that of *Doliphoceras darevskii* sp. n., body habit, however being characteristic for the genus *Anagyrus*. Generally speaking, traditional generic conceptions of taxonomist of Encyrtidae who were dealing mainly with Holarctic material lose sometimes their definition, when one studies tropical faunas.

Genus *Mercetencyrtus* TRJAPITZIN

TRJAPITZIN, 1963, Rev. Ent. USSR, XLII (4): 884 - 888.

Mercetencyrtus ambiguus (NEES)

NEES, 1834, Hym. Ichn. aff. Mon, 2: 239 - 240 (*Encyrtus*). — MAYR, 1875, Verh. Zool.-bot. Ges. Wien, 25: 711 (*Encyrtus*). — MERCET, 1921, Fauna Ibérica, Him. fam. Encirtidos: 283 - 285 (*Coccidencyrtus?*). — NIKOLSKAYA, 1952, Chalcids of the fauna of the USSR: 381 (*Coccidencyrtus*). — TRJAPITZIN, 1963, Rev. Ent. USSR, XLII (4): 884 - 888.

Komodo Island, sea level, palm savanna (*Borassus*), caught by sweeping of *Imperata arundinacea*, 5. VIII. 1962, ♀ (leg. I. S. DAREVSKY). Padar Island, dry slopes of a gorge, caught by sweeping of *Imperata arundinacea*, 13. VIII. 1962, 1♀ (leg. I. S. DAREVSKY).

In the Palaearctic region this species was found in Spain, the German Federal Republic, the German Democratic Republic, Hungary and in the USSR (Kaliningrad region, Moldavia, Moscow, Poltava, the Crimea, Stavropol Territory, Black Sea Coast of Krasnodar Territory, Karatshaevo-Tsherkesia, Adjaria, Armenia, Azerbaijan, Volgograd region, Tajikistan, Khabarovsk Territory and Primorye Territory). Hosts of *M. ambiguus* are unknown.

Genus *Ooencyrtus* ASHMEAD

ASHMEAD, 1900, Proc. U. S. Nat. Mus., XXII: 381-382. — SCHMIEDEKNECHT, 1909, Gen. Ins., 97: 238. — HOWARD, 1910, U. S. Dept. Agr. Bur. Ent., Tech. Ser., 19: 2 (*Schedius*). — MERCET, 1921, Fauna Ibérica, Him. fam. Encirtidos: 297-305 (*Ooencyrtus*), 305-328 (*Schedius*). — MERCET, 1925, Eos, I (3): 324. — FERRIÈRE, 1931, Bull. Ent. Res., XXII (2): 279-295. — FERRIÈRE, 1947, Bull. Ent. Res., 37-630. — NIKOLSKAYA, 1952, Chalcids of the fauna of the USSR: 384-388. — HOFFER, 1963, Acta Ent. Mus. Nation. Pragae., 35: 560-564. — TACHIKAWA, 1963, Mem. Ehime Univ., Sect. VI (Agr.), 9 (1): 175-178.

Ooencyrtus segestes TRJAPITZIN, sp. n.

Macropterous female. Head as wide as thorax and somewhat wider than high (27-23). Minimum width of vertex about one third the maximum width of head. Occipital margin concave. Frontoververtex convex, in the middle two-third longer than minimum width of vertex. Apical angle of ocellar triangle little more than 90°. Lateral ocelli somewhat nearer to eyes than to the occipital margin. Malar space little more than twice shorter than eye (8:17). Upper and lateral margins of facial depression rounded. Distance (in vertical direction) from upper margin of facial depression to apex of vertex less than the distance to mouth border (10:13). Antennae (fig. 12) attached at the level of ventral eye margins. Antennal sockets farther from one another than from mouth border and eye (5:3, 5:3). Upper mouth border deeply incised. Interantennal elevation of face reaching mouth border. Thorax strongly convex. Mesonotum more than twice as wide as long (16:11). Anterior wing little less than three times longer than its greatest width (60:23); proximal part and venation of anterior wing as in fig. 13. Propodeum short, especially in the middle. Mesotibial spur shorter than middle basitarsus. Abdomen (in dry condition) as long as thorax. Ovipositor almost not exerted.

Body black, with moderate violet-bronzy lustre. Facial depression blue-violet. Mesopleura violet. Apex of scutellum bluish-green. Basal half of abdomen brownish-yellow. Antennae, palpi and legs yellow; funicle and club of antennae with brownish tint. Wings hyaline. Scutellum minutely reticulated, with almost smooth apex. Length 0.75 mm.

Brachypterous female. Differs from the preceding form in the following characters. Head wider than thorax (24:19). Frontoververtex in the middle a little longer than minimum width of vertex (11:8). Ocelli forming a right-angled triangle. Malar space twice shorter than eye. Distance (in vertical direction) from upper margin of facial depression to apex of vertex a little more than one third the height of head (4:11). Antennae

attached just below the level of ventral eye margins. Antennal sockets about as far apart as from mouth border and little closer to one another than to eye. Thorax weakly convex. Mesonotum three times as wide as long. Scutellum little wider than long (11: 9). Wing stumps not reaching hind margin of true third abdominal tergite. Abdomen (in dry condition) as long as head and thorax combined or somewhat shorter. Ovipositor slightly exerted. Apex of scutellum greenish-violet. Length about 0.7 - 0.75 mm.

Male unknown.

Komodo Island, sea level, palm savanna (*Borassus*), caught by sweeping of *Imperata arundinacea*, 5. VIII. 1962, 3 ♀♀ (macropterous holotype and 2 brachypterous paratypes) (leg. I. S. DAREVSKY). Antenna and anterior wing of the holotype in microscopic slide No. 1081.

The new species belongs to the species-group of *Ooencyrtus telenomicida* (VASSILIEV). Its body colouring is similar to that of *O. malayensis* FERRIÈRE, which was reared in Malaya from the eggs of the butterflies *Cephanodes hylas* L. (Nymphalidae), *Papilio agamemnon* L. and *P. polytes* L. (Papilionidae) and from the eggs of the bug *Leptocorisa acuta* THBG. (Coreidae) (FERRIÈRE, 1931). On Java *O. malayensis* was reared from the eggs of the bugs *Homoeocerus marginellus* H.S., *Physomerus* sp. (Coreidae) and *Nezara* sp. (Pentatomidae) (KALSHOVEN, 1951). Main differences between macropterous females of these species are represented in the following table:

Ooencyrtus malayensis FERRIÈRE, ♀

Ooencyrtus segestes TRJAPITZIN,
sp. n., ♀

Ocelli forming an acute-angled triangle; lateral ocelli very close to eye.

Scape of antennae two and a half times longer than pedicel, which is longer than two first funicular segments combined; first three segments of funicle subquadrate.

Basal half of scape and base of pedicel brownish.

Ocelli forming an obtuse-angled triangle; distance from lateral ocellus to eye more than ocellar diameter.

Scape of antennae little more than three times longer than pedicel, which is shorter than two first funicular segments combined; first three segments of funicle at least twice as long as wide (fig. 12).

Scape and pedicel completely yellow.

Catalogue of Indonesian Encyrtidae

1. *Achrysoophagus annulatus* FERRIÈRE: Java, from *Maconelicoccus hirsutus* (GREEN) (Homoptera, Pseudococcidae). FERRIÈRE, 1951, Bull. Soc. Fouad I-er Ent., 35: 190.
2. *Achrysoophagus javanicus* FERRIÈRE: Java, from the same host. FERRIÈRE, *Ibid.*: 188.
3. *Aminellus sumatraensis* KERRICH: Sumatra, from *Scymnus smithianus* SILV. (Coleoptera, Coccinellidae). KERRICH, 1963, Beitr. Ent., 13 (3 - 4): 363.
4. *Anagyrus hippocoön* TRJAPITZIN sp. n.: Padar Island. See p. 317 of the present article.
5. *Apterencyrtus microphagus* (MAYR): Java, from *Aspidiotus destructor* SIGN. and *Chrysomphalus ficus pallens* GREEN (Homoptera, Diaspididae). GAHAN, 1927, Bull. Ent. Res., 18 (2): 149.
6. *Arrenophagus chionaspidis* AURIVILLIUS: Java. GIRAULT, 1915, Mem. Queensland Mus., 4: 73.
7. *Callipteroma testaceum* MOTSCHOUJSKY: Komodo and Padar Islands. See p. 313 of the present article.
8. *Cerchysius lyperosiae* FERRIÈRE: Java from *Lyperosia exigua* DE MEIJ. (Diptera, Muscidae). FERRIÈRE, 1933, Rev. Suisse Zool., 40: 638 - 640.
9. *Cheiloneuromyia javensis* GIRAULT: Java, from *Coccus viridis* (GREEN) (Homoptera, Coccidae). GIRAULT, 1916, Proc. U. S. Nat. Mus., 51: 480; KALSHOVEN, 1951, Plagen Cultuurgewassen Indonesië, II: 922.
10. *Cheiloneurus javanus* PERKINS: Java, from *Paradryinus* sp. (Hymenoptera, Dryinidae). PERKINS, 1912, Rep. Exp. St. Hawaiian Sug. Pl. Ass., 11: 17 - 18.
11. *Cheiloneurus latiscapus* (GIRAULT): Java, from *Coccus viridis* (GREEN) (Homoptera, Coccidae). GIRAULT, 1911, Can. Ent., 43: 169; Proc. U. S. Nat. Mus., 51: 481; KALSHOVEN, 1951, Plagen Cultuurgewassen Indonesië, II: 922 (as *Cristatithorax*).
12. *Cheiloneurus unicolor* MERCET: Java. MERCET, 1922, Bol. R. Soc. Esp. Hist. Nat., 22: 155.
13. *Comperiella bifasciata* HOWARD: Java, from *Chrysomphalus ficus pallens* GREEN (Homoptera, Diaspididae). GAHAN, 1927, Bull. Ent. Res., 18 (2): 149; VOÛTE, 1937, Natuurk. Tijdschr. Ned. Ind., 97 (2): 28 - 34.

14. *Comperiella unifasciata* ISHII: Java, from *Aspidiotus destructor* SIGN. and *A. rigidus* REIJNE (Homoptera, Diaspididae). GAHAN, 1927, Bull. Ent. Res., 18 (2) : 149; KALSHOVEN, 1951, Plagen Kultuurgewassen Indonesië, II: 921 - 922.
15. *Copidosoma javae* (GIRAULT): Java, from *Plusia* sp. (Lepidoptera, Noctuidae). GIRAULT, 1927, New Javanese Hymenoptera, priv. publ., Washington: 5 (as *Paracopidosomopsis*).
16. *Copidosoma javensis* (GIRAULT): Java, probably from puparia of *Coccodiplosis pseudococci* DE MEIJ. (Diptera, Cecidomyiidae) GIRAULT, 1919, Treubia, I: 56; ROEPKE, *Ibid.*: 60 (as *Copidosomopsis*).
17. *Copidosoma larvarium* (GIRAULT): Java, from caterpillars of *Delias* sp. (Lepidoptera, Pieridae). GIRAULT, 1919, Treubia, I: 58 (as *Paracopidosomopsis*).
18. *Dinocarsis cooki* GIRAULT: Java, GIRAULT, 1919, Treubia, I: 57 - 58.
19. *Dinocarsis lineatipes* GIRAULT: Java. GIRAULT, *ibid.*: 57.
20. *Doliphoceras darevskii* TRJAPITZIN, sp. n.: Komodo and Padar Islands, See p. 310 of the present article.
21. *Encyrtus lecaniorum* (MAYR): Java, Tanimbar Islands. TIMBERLAKE, 1919, Proc. Hawaiian Ent. Soc., 4 (1) : 187 - 188, 209 - 212 (as *E. barbatus* TIMBERLAKE).
22. *Erencyrtus dewitzi* MAHDIHASSAN: Java, from *Laccifer lacca* (KERR) (Homoptera, Lacciferidae). KALSHOVEN, 1951, Plagen Kultuurgewassen Indonesië, II: 922.
23. *Giraultella pallidiceps* (GIRAULT): Java, from larvae of *Xylocopa caerulea* (FABR.), *X. aestuans* (L.) and *X. tenuiscapa* WESTW. (Hymenoptera, Xylocopidae). GIRAULT, 1919, Treubia, I: 54; ROEPKE, *Ibid.*: 60 (as *Epaenasomyia*).
24. *Giraultella xylocopae* (GIRAULT): Java, from the same hosts. GIRAULT, *Ibid.*, ROEPKE, *Ibid.* (as *Epaenasomyia*).
25. *Heterococcidoxenus javensis* ISHII: Java. ISHII, 1940, Kontiû, 14: 103 - 105.
26. *Homalotylus flaminius* (DALMAN): Java, from larvae of *Orcus janthinus* MULS. (Coleoptera, Coccinellidae). GIRAULT, 1917, New Javanese Hymenoptera, priv. publ., Washington: 3 (as *H. orci* GIRAULT); TIMBERLAKE, 1919, Proc. U. S. Nat. Mus., 56: 141 - 147.
27. *Leefmansia bicolor* WATERSTON: The Molucca Islands, from the eggs of *Sexava* sp. (Orthoptera, Tettigoniidae). WATERSTON, 1928, Ann. Mag. Nat. Hist., 10 (1) : 527 - 528; KALSHOVEN, 1951, Plagen Kultuurgewassen Indonesië, II: 923.

28. *Leptomastix phenacoci* COMPERE: Java, from *Maconelicoccus hirsutus* (GREEN) (Homoptera, Pseudococcidae). COMPERE, 1938, Bull. Soc. Fouad I-er Ent., 22: 36 - 38.
29. *Leptomastix trilingifasciatus* GIRAULT: Java. GIRAULT, 1916, Proc. U. S. Nat. Mus., 51: 479.
30. *Leurocerus ovivorus* CRAWFORD: Java, Sumatra, from the eggs of *Amathusia phidippus* L. (Lepidoptera, Amathusiidae). CRAWFORD, 1911, Proc. U. S. Nat. Mus., 41: 276; Gahan, 1922, Treubia, 3 (1): 47.
31. *Litomastix walshi* MERCET: Java. MERCET, 1922, Bol. R. Soc. Esp. Hist. Nat., 22: 154.
32. *Mercetencyrtus ambiguus* (NEES): Komodo and Padar Islands. See p. 319 of the present article.
33. *Ooencyrtus javanicus* MERCET: Java, from the eggs of Lepidoptera. MERCET, 1922, Bol. Soc. Esp. Hist. Nat., 22: 152 (as *Schedius*); FERRIÈRE, 1931, Bull. Ent. Res., 22 (2): 282 - 286.
34. *Ooencyrtus leucocerus* MERCET: Java, from the eggs of Lepidoptera. MERCET, *Ibid*: 150 (as *Schedius*); FERRIÈRE, *ibid.*: 282 - 286.
35. *Ooencyrtus major* FERRIÈRE: Java, from the eggs of *Attacus atlas* F. (Lepidoptera, Attacidae). FERRIÈRE, 1931, Bull. Ent. Res., 22 (2): 285.
36. *Ooencyrtus malayensis* FERRIÈRE: Java, from the eggs of *Homocercus marginellus* H. S., *Physomerus* sp. (Hemiptera, Coreidae) and *Nezara* sp. (Hemiptera, Pentatomidae). KALSHOVEN, 1951, Plagen Cultuurgewassen Indonesië, II: 923.
37. *Ooencyrtus podontiae* (GAHAN): Java, from the eggs of *Podontia affinis* GROND. (Coleoptera, Chrysomelidae). GAHAN, 1922, Treubia, 3: 51 (as *Schedius*); FERRIÈRE, 1931, Bull. Ent. Res., 22 (2): 282 - 286.
38. *Ooencyrtus segestes* TRJAPITZIN, sp. n.: Komodo Islands. See p. 320 of the present article.
39. *Spaniopterus crucifer* GAHAN: Java, from *Aspidiotus destructor* SIGN. (Homoptera, Diaspididae). GAHAN, 1927, Bull. Ent. Res., 18 (2): 150.
40. *Tachardiaephagus tachardiae* (HOWARD): Java, from lac insects (Homoptera, Lacciferidae). KALSHOVEN, 1951, Plagen Kultuurgewassen Indonesië, II: 922 - 923.
41. *Taftia prodeniae* ASHMEAD: Java, found on the head of an ant *Dolichoderus dituberculatus* MAYR (Hymenoptera, Dolichoderidae). GIRAULT, 1919, Treubia, I: 56; ROEPKE, *Ibid.*: 60.

42. *Taftia saissetiae* GAHAN: Java (Bogor), from *Pseudococcus lilacinus* (CKLL.), III. 1937, 5 specimens (leg. R. LE PELLEY) (Det. H. COMPERE). This material was kindly presented by Dr. H. COMPERE to Dr. M. N. NIKOLSKAYA and is preserved in the collection of Zoological Institute.

DALLA TORRE (1898) and HOFFER (1952) erroneously cite *Ectroma dunense* SIX as found on Java. In reality, however, this species was described from Holland (SIX, 1876). *)

„*Ageniaspis* sp.” parasitizing the caterpillars of citrus mining moth *Phyllocnistis citrella* STAINT. (Lepidoptera, Phyllocnistidae) on Java (VOÛTE, 1932, 1935; KALSHOVEN, 1951) apparently does not belong to the genus *Ageniaspis* DAHLBOM. All known species of *Ageniaspis* oviposit in the eggs of Lepidoptera, whereas „*Ageniaspis* sp.” lays eggs into young caterpillars of *Phyllocnistis citrella*.

Besides the species of Encyrtidae described in the present article, Dr. I. S. DAREVSKY collected on the islands of Komodo group 1 ♂ of *Tetracnemus* sp. and 1 ♂ of *Rhopus* sp. For more exact identification of these species the study of additional material is necessary.

Analysis of the list of Indonesian Encyrtidae shows that 34 species from total number of 42 are known only from Indo-Malayan region. *Apterencyrtus microphagus* (MAYR), *Arrenophagus chionaspidis* AURIVILLIUS and *Homalotylus flaminius* (DALMAN) are nearly cosmopolitan species, the problem of identity of *Arrenophagus chionaspidis* from different zoogeographical regions being debatable. *Comperiella bifasciata* HOWARD is widely distributed in the Palaearctic region, from where this species was introduced to the USA and perhaps occasionally imported to South Africa. *Comperiella unifasciata* ISHII is discovered also in China, Japan and Primorye Territory of the USSR and *Tachardiaphagus tachardiae* (HOWARD) penetrates into South China (Yunnan). Motherland of *Encyrtus lecaniorum* (MAYR) is apparently South-East Asia from where this species was spread together with citrus plants in many subtropical and tropical regions of the globe. *Mercetencyrtus ambiguus* (NEES) is widely distributed in Europe and Palaearctic part of Asia.

Generic contingent of Indonesian Encyrtidae is much similar to that of Palaearctic Encyrtidae: 18 genera from 27 are found also in the Palaearctic region.

Five species of Indonesian Encyrtidae were introduced from Java to other countries or to other islands of Indonesia with the purpose of

*) It is possible, that *Ectroma dunense* SIX belongs to the genus *Echthroplexiella* MERCET.

biological control of insect pests. *Leptomastix phenacocci* COMPERE, *Achrysopephagus annulatus* FERRIÈRE and *A. javanicus* FERRIÈRE were imported to Egypt against the polyphagous mealybug *Maconelicoccus hirsutus* (GREEN) (COMPERE, 1938; FERRIÈRE, 1951), the species of *Achrysopephagus* being, in all appearance, secondary parasites. *Comperiella bifasciata* HOWARD was introduced from Java to Bali to combat the scale *Aspidiotus destructor* SIGN. (VOÛTE, 1937), and *Spaniopterus crucifer* GAHAN was introduced against the same pest in Fiji (TAYLOR, 1935).

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