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NOTES ON SOME GENERA AND SPECIES OF CHALCIDOIDEA (HYMENOPTERA).

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These notes, which involve some generic and specific synonymy, several generic transfers, and some new distributional records for several species, are published at this time in order to make clear the use of the names in identifications furnished to economic workers.

Family CHALCIDIDAE.

Brachymeria femorata (Panzer).

Chalcis femorata Panzer, Faun. Insect. German., VII, p. 84, T. 16, 1801.
Chalcis koebelei Crawford, Proc. Ent. Soc. Wash., vol. II, p. 207, 1910. (New synonymy.)

A specimen from Potsdam, Germany, identified by F. Ruschka as *Chalcis femorata* Panzer has been compared with the type specimens of *C. koebelei* Crawford and seems to be the same. The hind femur of the specimen from Germany has the black transverse band somewhat narrower than do the types of *koebelei*, and the wings slightly infuscated, but there appears to be no structural difference of any kind. The color of the femur is somewhat variable in the material at hand, and the infuscation of the wing is of such a character that it is not believed to be of any specific significance.

Besides the specimen from Germany and the types of *koebelei* which were from Hong Kong, China, the following material of this species has been seen: Two specimens from Hungary collected by Chas. Sajo (these specimens now in the collection of the Illinois State Laboratory of Natural History at Urbana, Ill.); one specimen from Baguio, Philippine Islands, reared from *Pieris* sp. by A. G. Toquero; one specimen from Manila, P. I., collected by R. C. McGregor; one specimen from Kolambugan, Mindanao, P. I.; and one specimen from Buitenzorg, Java, reared from a pupa of a nymphalid by K. W. Dammerman.

This material has been carefully compared with Panzer's original description and figure, and Ruschka's identification of the species seems to be undoubtedly correct.

Family EURYTOMIDAE.

Eurytoma monemae Ruschka.

Eurytoma monemae Ruschka, Ent. Mitt., vol. 7, p. 161, figs. 1–2, 1918.
Eurytoma parasae Gahan, Proc. U. S. Natl. Mus., vol. 56, p. 514, 1919. (New synonymy.)

Two paratypes of *Eurytoma monemae* Ruschka, secured through the kindness of Dr. Walther Horn of the Deutsches Entomologisches Institut, Berlin-Dahlen, Germany, have been compared with the type series of *E. parasae* Gahan and found to agree. Ruschka's specimens were reared from cocoons of *Monema flavescens* Walker collected at Tientsin, China, while the specimens composing the type series of *parasae* were reared from *Parasa lepida* Cram. and *Thosea* sp. in South India.

Eurytoma nesiotes Crawford.

Eurytoma fulvipes Crawford, Proc. U. S. Natl. Mus., vol. 38, p. 129, 1910. (Preoccupied by *fulvipes* Fitch, 1865.)
Eurytoma nesiotes Crawford, Proc. U. S. Natl. Mus., vol. 41, 1911, p. 273. (For *fulvipes* Crawford, not *fulvipes* Fitch, 1865.)
Eurytoma denticoxa Gahan, Proc. U. S. Natl. Mus., vol. 56, p. 515, 1919. (New synonymy.)
Eurytoma dentipectus Gahan, Proc. U. S. Natl. Mus., vol. 56, 516, 1919. (New synonymy.)

The type of *Eurytoma nesiotes* Crawford, described from the Philippines, is apparently not distinguishable from that of *E. denticoxa* Gahan, described from Coimbatore, South India. Likewise a careful restudy of the series of specimens upon which I based the description of *E. dentipectus* has demonstrated that the characters mentioned in the description as distinguishing this species from *denticoxa* are not constant and this species must also be relegated to synonymy with *nesiotes* Crawford.

Family ENCYRTIDAE.

Tachinaephagus zealandicus Ashmead.

Tachinaephagus zealandicus Ashm., Mem. Carnegie Mus., vol. I, p. 304, 1904.
Tachinaephagus australiensis Gir., Ins. Inscit. mens, vol. 5, p. 142, 1917.
Stenoterys fulvoventralis Dodd, *in* Froggatt, Agr. Gaz. N. S. Wales, vol. 32, 1921, p. 730, figs. (New synonymy.)
Australencyrtus giraulti Johnston & Tiegs, Proc. Roy. Soc. Queensland, vol 33, pp. 107, 118, figs. 11–17, 1931. (New synonymy.)

That *Tachinaephagus zealandicus* Ashm. and *T. australiensis* Girault are identical was pointed out by Gahan and Fagan in

the list of type species of the genera of Chalcidoidea (U. S. Natl. Mus. Bull. 124, p. 141, 1923). Both names are based on the same type specimens.

Tachinaephagus giraulti Johnston & Tiegs and *Stenoterys fulvoventralis* Dodd were declared to be identical by Ferrière (Rev. Suisse Zool., vol. 40, p. 637, 1933). Ferrière also stated that *T. giraulti* was very similar to *T. zealandicus* Ashmead but pointed out certain minor details in which they seemed to differ, these supposed differences apparently based on comparison of specimens of *giraulti* with Girault's description of *zealandicus* (= *australiensis*).

I have compared the Ashmead and Girault types of *zealandicus* with specimens reared from blowflies at Brisbane, Australia, by G. H. Hardy and also with a series of specimens reared by D. Miller from *Sarcophaga milleri* Johnston in New Zealand and found them to agree exactly. These specimens have also been compared with the original descriptions of *Australencyrtus giraulti* and *Stenoterys fulvoventralis* and found to agree. The supposed differences doubtfully pointed out by Ferrière are not apparent or are plainly covered by variation. I am quite certain that *giraulti* is a synonym of *zealandicus*.

Family PTEROMALIDAE.

Dibrachys cavus (Walker).

Pteromalus cavus Walker, Ent. Mag., vol. 2, p. 377, 1835.

Pteromalus boucheanus Ratzeburg, Ichneum. d. Forstinsect., vol. 1, p. 196, 1844.

Semiotellus clisiocampae Fitch, 1st and 2d Repts. Ins. New York, p. 200, 1856. (New synonymy.)

Cheiropachys nigrocyaneus Norton, Trans. Amer. Ent. Soc., vol. 2, p. 327, 1869. (New synonymy.)

Pteromalus gelechiae Webster, Rept. State Ent. Ill., 12, p. 151 (1882), 1883. (New synonymy.)

Pteromalus chionobae Howard, Scudder's Butterflies of U. S., p. 1889, 1889. (New synonymy.)

Arthrolytus apatelae Ashmead, Bull. Ohio Expt. Sta., vol. 1, p. 162, 1893. (New synonymy.)

Arthrolytus pimplae Ashmead, Trans. Amer. Ent. Soc., vol. 21, p. 339, 1894. (New synonymy.)

Coelopisthoidea nematicida Gahan, Canad. Ent., vol. 45, p. 179, 1913. (Not *nematicida* Packard.)

Dibrachys apatelae Girault, Canad. Ent. vol. 48, p. 408, 1916.

Dibrachys clisiocampae Girault (in part), Canad. Ent. vol. 48, p. 408, 1916.

In my judgment the above names all refer to the same species. I have compared material in the United States National Museum, including types of *apatelae*, *pimplae*, *nigrocyaneus*, *chionobae*, *gelechiae* and *clisiocampae* with representatives from Europe of

cavus and *boucheanus* and can find no means of distinguishing any of them. In the above-cited paper by Girault, *Pteromalus nematicida* Packard is listed as a synonym of *clisiocampae* Fitch. Girault's conclusion was based upon specimens of *D. cavus* in the United States National Museum labeled "types" of the Packard species but which are certainly not types of the species, as will be shown in the discussion of *Tritneptis klugii* (Ratzeburg) on a subsequent page of this paper. The transfer of *nematicida* Packard to the genus *Coelopisthoidea* by Gahan likewise was based upon the same false "types."

Dibrachys saltans (Ratzeburg).

Pteromalus saltans Ratzeburg, Ichneum. d. Forstinsect., vol. 3, p. 232, 1852.
Coelopisthoidea cladiae Gahan, Canad. Ent., vol. 45, p. 179, 1913. (New synonymy.)
Dibrachys saltans Kurdjumov, Rev. Russ. Ent. vol. 13, p. 11, 1913.

Ratzeburg described this species from Germany as a parasite of *Cladius uncinatus* Hartig. Thomson (Hymen. Scand. vol. 5, p. 157, 1878) doubtfully synonymized it with (*Diglochis*) *Psychophagus omnivorus* (Walk.). Kurdjumov, who had examined Ratzeburg's type, transferred the species to the genus *Dibrachys*.

In 1927 the writer was privileged to study Ratzeburg's collection which is preserved in the Forstliche Hochschule at Eberswalde, Germany, and upon examining the type of *Pteromalus saltans* was immediately impressed with its resemblance to *Coelopisthoidea cladiae* Gahan described in 1913 from specimens reared at Upper Marlboro, Md., from *Cladius isomerus* Norton (=*pectinicornis* of authors, not Fourc.). A paratype of the American parasite was compared with the type of *saltans* and found to be indistinguishable.

Kurdjumov expressed the opinion that *saltans* was probably a variety of *Dibrachys boucheanus* (Ratzeburg). Although congeneric the two species are quite distinct. The head of *saltans* is distinctly thicker antero-posteriorly than that of *boucheanus*, the frons more deeply concave, mandibles larger with their lower basal angles unusually prominent and their ventral margins more or less reflexed, clypeus distinctly incised at the middle, occipital carina present but less strongly developed, pedicel fully three times as long as broad, and second ring joint subquadrate.

Dibrachys saltans is easily distinguished from *Psychophagus omnivorus* by the short and subequal stigmal and postmarginal veins, by the presence of an occipital carina, by the conic ovate abdomen, and by numerous other characters.

Besides the types of *Coelopisthoidea cladiae*, the U. S. National

Museum now possesses 3 specimens of *D. saltans* reared by W. W. Baker from *Cladius isomerus* Norton, July 26, 1933, at Puyallup, Wash., and one specimen said to have been reared by C. N. Ainslie from stems of *Stipa comata* in August, 1923, at Beach, N. Dak.

Tritneptis Girault.

Psyche, vol. 15, p. 92, 1908.

This genus was erected with *Tritneptis hemerocampae* Girault as its genotype. Nine years later Girault (Ins. Inscit. Mens., vol. 12, 1924) synonymized the type species with *Dibrachys boucheanus* Ratzeburg).

Three cotypes as well as numerous other specimens of *T. hemerocampae* are in the U. S. National Museum collection, and an examination of these shows quite plainly that this synonymy is incorrect. *T. hemerocampae* lacks entirely the occipital carina so characteristic of *Dibrachys boucheanus* [now recognized as a synonym of *D. cavus* (Walker)]. The head is more deeply emarginate posteriorly, the cheeks broader, the postmarginal vein usually a little shorter than the stigmal (never slightly longer as in *cavus*), and there are other minor differences which make it very certain that *T. hemerocampae* is a species different from *Dibrachys cavus* and, according to the present definitions of genera in the *Pteromalidae*, it is excluded from *Dibrachys* by the absence of the occipital carina.

The genera of Pteromalidae are very much in need of a thorough revision, and until such a revision is published and the various genera redefined it seems expedient to recognize *Tritneptis* as a good genus very closely resembling *Dibrachys*, but distinguished from it chiefly by the immargined occiput. It apparently differs from *Coelopisthia* Foerster as at present understood only by having the abdomen in the female distinctly much longer than broad instead of nearly circular.

The following key will help to distinguish five species occurring in North America, which I believe belong in *Tritneptis:*

KEY TO THE SPECIES OF TRITNEPTIS OCCURRING IN NORTH AMERICA.

1. Forewing entirely without marginal fringe; head in lateral view with the face not entirely ventral, forming with plane of frons an angle distinctly greater than a right angle; mesoscutum and scutellum dull or only weakly shining, the sculpture not especially shallow; forewings either hyaline or distinctly infuscated. Male scape either slender or distinctly thickened.....2

Forewing with a distinct though short marginal fringe along posterior apical border behind apical middle; head in lateral view with the face entirely ventral and forming with the frons almost an exact

right angle; mesoscutum and scutellum shining metallic, the sculpture distinct but very shallow; forewings hyaline. Scape of male distinctly thickened.....*klugii* (Ratzeburg).

2. Forewing of female with a large deeply fuscous cloud embracing full width of wing and extending from base of wing to a point beyond apex of stigmal vein, this cloud present but less distinct in the male; scutellum very finely and deeply punctate, opaque, this sculpture obviously a little finer than that of mesoscutum; marginal vein distinctly more than twice as long as stigmal; clypeus bright metallic green; mandibles rufous; scape of male slender.....*scutellata* (Muesebeck).

   Forewings in both sexes hyaline; mesoscutum and scutellum less deeply sculptured, slightly shining, the punctures of scutellum a little shallower than those of mesoscutum but not conspicuously finer; marginal vein not more than twice as long as stigmal; clypeus not bright metallic green; mandibles variable in color, often black; scape of male more or less thickened.....3

3. Antennal pedicel about twice as long as broad, equal to or very little longer than the first funicle joint plus the two ring joints; postmarginal vein as long as or slightly longer than stigmal; forewing behind submarginal vein either bare or with numerous weak cilia, behind and adjacent to the marginal vein not more sparsely ciliated than on middle of wing; mandibles often yellowish but sometimes black.....4

   Antennal pedicel three times as long as broad, equal to or only very slightly shorter than the combined first and second funicle joints plus the ring joints; postmarginal vein a little shorter than stigmal; base of wing behind the submarginal vein bare, behind and adjacent to the marginal vein more sparsely ciliated than on middle of wing; mandibles black.....*hemerocampae* (Girault).

4. Forewing behind submarginal vein bare; lateral folds of propodeum cariniform; anterior margin of clypeus straight; mandibles reddish testaceous.....*koebelei*, new species.

   Forewing behind submarginal vein with numerous weak discal cilia; lateral folds of propodeum distinct but rounded, not cariniform; anterior margin of clypeus sinuate, slightly impressed at the middle so as to form two short teeth or projections; mandibles dark ferruginous to black.....*diprionis*, new species.

Tritneptis klugii (Ratzeburg), new combination.

Pteromalus klugii Ratzeburg, Ichneum. d. Forstinsect., vol. 1, p. 198, 1844.

Pteromalus nematicida Packard, Rept. U. S. Commr. Agr., p. 146, pl. 13, fig. 5, 1883. (New synonymy.)

Coetopisthia nematicida Hewitt, Canad. Ent., vol. 43, p. 298, figs. 19–23, 1911; Canad. Expt. Farms Ent. Bull. 5, p. 28, figs. 15–18, 1912.

Diglochis sp. Ruggles, Jour. Econ. Ent., vol. 4, p. 171, 1911; Hewitt, Canad. Expt. Farms Bull. 5, p. 31, 1912.

Lariophagus klugii Kurdjumov, Rev. Russ. Ent., vol. 13, p. 15, 1913.

Diglochis lophyrorum Ruschka, Zeitschr. Angew. Ent., Bd. II, Heft. 2, p. 400, 1915; Meyer, Biol. Meth. Pest Control, Leningrad, p. 114, 1931. (New synonymy.)

Several series of specimens reared from the larch sawfly (*Nematus erichsonii* Hartig) in America have been compared with the description of *Pteromalus klugii* Ratzeburg, originally recorded from the same host species in Germany, and seem to agree perfectly. Furthermore these specimens apparently agree in every detail with the description of *Diglochis lophyrorum* Ruschka, originally described as a parasite of *Lophyrus pini* (L.) in Bohemia. No European specimens are available for comparison but the agreement of the American material with both descriptions, taken in conjunction with the host records, leaves no reason to doubt that the parasite occurring in America is really the European species and that *Pteromalus klugii* and *Diglochis lophyrorum* are identical.

Pteromalus nematicida Packard is believed to be identical with *klugii* Ratzeburg. No type material of *nematicida* has been available for study and the conclusion regarding its identity therefore is necessarily based on the description and host record. Four specimens in the National Museum collection, labeled as types of *nematicida* and so recorded in the type catalog, could not have been part of the type series since, according to the labeling, they were reared in Illinois by D. W. Coquillet, from *Nematus ventricosus* Latrielle (now treated as a synonym of *N. ribesii* Scopoli), whereas the actual types of the species were reared by Packard from cocoons of *Nematus erichsonii* Hartig collected in Maine by C. G. Atkins. These false "types" appear to be typical *Dibrachys cavus* (Walker), and, as I have pointed out in the discussion of that species, they were the basis of Girault's as well as my own previous treatment of the species. Packard's original characterization of *nematicida* consisted merely of a figure of the adult coupled with the host record. This figure agrees fairly well with the specimens which I have identified as *klugii*. Through the kindness of Mr. G. Stuart Walley of the Canadian Department of Agriculture I have received a number of specimens of the parasite treated of by G. Gordon Hewitt under the name of *Coelopisthia nematicida* and find them to agree in every respect with what I am calling *klugii*. Unfortunately I have been unable to obtain representatives of the parasite referred to by Ruggles under the name of *Diglochis* sp. According to Hewitt, specimens obtained by him from Ruggles were submitted to C. T. Brues, who informed him that they agreed well with *Pteromalus klugii* Ratzeburg. Since *klugii*, as will be shown, is present in Minnesota, there appeärs no reason to doubt that the *Diglochis* sp. of Ruggles was in reality *klugii*.

Pteromalus klugii was transferred to the genus *Lariophagus* Crawford by Kurdjumov, probably on the basis of an examination of Ratzeburg's types. The species is similar in many respects to the genotype of *Lariophagus* (*L. texanus* Crawford) but differs by having the eyes inconspicuously hairy, the face much more strongly receding below the antennae, the postmarginal and stigmal veins shorter and subequal [about as in *Dibrachys cavus* (Walker)], and the antennal pedicel much longer than the first funicle joint plus the ring joints. These characters as well as the different host relationships indicate that the species does not belong in *Lariophagus*. Neither does it fall naturally in the genus *Diglochis*. The head is quite differently shaped from that of *D. complanatus* (Ratzeburg). The antennal flagellum is much more slender, the eyes are not nearly so hairy, the stigmal and postmarginal veins are shorter, the propodeal spiracles are more nearly circular, and the female abdomen, instead of being subcircular in outline and shorter than the thorax, is as long as the head and thorax or longer, elongate ovate in outline, and fully twice as long as broad.

The venation, shape of the abdomen, and most of the other characters agree very closely with those of the genus *Dibrachys* Foerster, but the absence of any semblance of an occipital carina at once excludes the species from that genus. Many of its characters ally it closely with those species at present placed in the genus *Coelopisthia* Foerster, but the elongate-ovate abdomen is unlike typical species of that genus which have the abdomen short and broad.

On the other hand *Pteromalus klugii* seems to be entirely congeneric with *Tritneptis hemerocampae* Girault, genotype of *Tritneptis* Girault, and the species should therefore be known as *Tritneptis klugii* (Ratzeburg).

The following series of specimens in the National Museum collection all appear to be *Tritneptis klugii:* 3 specimens from *Nematus erichsonii* collected in Chequamegon National Forest, Wis., February 1936, under North East Forest Laboratory No. 14–201; 10 specimens from the same host species taken in the Flathead National Forest, Mont., March 4, 1936, under the same laboratory number; 14 specimens from *N. erichsonii* taken at Clarissa, Minn., September 7, 1931, by L. W. Orr; 12 specimens from *N. erichsonii* taken in Blackfeet National Forest, Mont., September 28, 1935, by J. C. Evenden, Hopk. U. S. No. 20125; 4 specimens from *Neodiprion tsugae* Middleton, Sweet Home, Ore., September 7, 1935, collected by R. L. Furniss Hopk. U. S. No. 31660D; 4 specimens from the same host and locality, July 1, 1935, under Hopk. U. S. No. 31607–237; 5 specimens from unnamed host on *Tsuga heterophylla* collected at Sweet Home, Oreg., August 18, 1934, J. A. Beal collector, under Hopk. U. S. No. 18875D; 8 specimens from West Yellow-

stone, Mont., September 9, 1924, J. C. Evenden collector, under Hopk. U. S. No. 17234a, host not indicated; 19 specimens from *Neodiprion banksiana* Rohwer, August 2, 1923, S. A. Graham collector, Hopk. U. S. No. 17500g, locality not indicated; 28 specimens from sawfly on lodgepole pine, West Yellowstone, Mont., August 28, 1926, H. E. Burke collector, Hopk. U. S. No. 18088g; 12 specimens from Cascade, Idaho, on *Pinus murrayana*, September 10, 1924, J. C. Evenden collector, Hopk. U. S. No. 17204a; 160 specimens from Fernis, British Columbia, reared from *N. erichsonii*, and received from the Canadian Department of Agriculture.

Tritneptis scutellata (Muesebeck), new combination.

Coelopisthia scutellata Muesebeck, Jour. Agr. Research, vol. 34, No. 4, p. 331, 1927.

Tritneptis hemerocampae Girault.

Tritneptis hemerocampae Girault, Psyche, vol. 15, p. 92, 1908.
Coelopisthia diacrisiae Crawford, Proc. Ent. Soc. Wash., vol. 12, p. 145, 1910. (New synonymy.)

I am unable to find any character which will distinguish cotypes of *Tritneptis hemerocampae* in the U. S. National Museum collection from the holotype and paratypes of *Coelopisthia diacrisiae* in the same collection. The specimens constituting the type series of *diacrisiae* are slightly larger than typical specimens of *hemerocampae* but do not differ otherwise. I believe they are the same species.

Tritneptis diprionis, new species.

This apparently new species is very similar to *hemerocampae* (Gir.) and one small series of specimens of it was previously identified by me as that species. It differs from *hemerocampae*, however, by the characters set forth in the accompanying key to species and also by the costal cell of the forewing being slightly more hairy, and the frons a little less deeply impressed medially. The male may be distinguished from *hemerocampae* by the thicker antennal scape.

Female.—Length 2.4 mm. Head and thorax with rather shallow alveolate sculpture. Head in dorsal view a little broader than thorax at tegulae, moderately concave posteriorly; frons broad, shallowly impressed medially; postocellar line slightly longer than ocellocular line; head in front view distinctly broader than high, antennae inserted about on a line with lower extremities of eyes; face moderately receding below antennae, forming with the plane of frons a rounded angle much greater than a right angle; clypeus slightly produced, its

anterior margin slightly sinuate; antennae moderately clavate; scape subcylindrical, not quite reaching to the front ocellus; pedicel about equal in length to the two ring joints plus the first funicle joint, frequently a little longer or a little shorter; first ring joint small and transverse, second subquadrate; first funicle joint very slightly longer than broad, following joints successively a little shorter, the fifth and sixth usually slightly broader than long; club a little longer than the two preceding funicle joints combined, distinctly a little thicker than the funicle; eyes with obscure, very short, sparse pile. Mesoscutum broader than long, shallowly sculptured, slightly shining, the parapsidal grooves weakly impressed anteriorly, absent posteriorly; scutellum rather flat, a little more finely and shallowly sculptured than the mesoscutum; propodeum about half as long as scutellum, distinctly more deeply sculptured than scutellum, with a distinct and complete median carina, the lateral folds also complete and distinct but not sharply cariniform. Forewing reaching considerably beyond apex of abdomen; marginal vein about twice as long as stigmal, the postmarginal vein equal to or very slightly longer than stigmal; forewing without marginal cilia, the discal area behind submarginal vein not bare as in *hemerocampae* but with numerous rather weak cilia and the area adjacent to the marginal vein fully as densely ciliated as the rest of the wing; hind wing with weak marginal cilia and nearly uniformly distributed discal cilia. Legs normal; hind tibia with one distinct spur. Abdomen as long as the thorax, broadly ovate, usually broader than the thorax, smooth or practically so, the last two segments very weakly sculptured; ovipositor not exserted. Head and thorax blackish green with a faint metallic luster; scutellum usually with a faint purplish tinge; propodeum dark greenish; abdomen shining black; scape dark reddish testaceous; pedicel either blackish or testaceous; flagellum black; coxae concolorous with thorax, rest of legs dark reddish testaceous; wings hyaline, venation dark brown.

Male.—Length 1.9 mm. Exactly like the female except that the antennal scape is obviously a little thickened, and the abdomen, while broadly ovate, is more rounded at apex.

Type locality.—Bound Brook, N. J.

Type.—U. S. N. M. No. 52891.

Described from 7 females and 1 male, reared from *Neodiprion sertifer* (Geoffroy), August 2, 1937, at Bound Brook, N. J. under North East Forest Laboratory No. 25–203–37; 4 females and 3 males reared from an unidentified sawfly on Norway pine taken at Springfield, Maine, August 31, 1932; 4 females and 3 males from an unidentified tenthredinid taken at Groton, Mass., September 1, 1936, under North East Forest Insect Laboratory No. 164–205–36–3; and 6 females and 1 male reared from cocoons of "black-headed spruce sawfly" taken at Itasca Park, Minn., July 27, 1930, by L. W. Orr.

Tritneptis koebelei, new species.

Agreeing with the description of *Tritneptis diprionis*, new species, except in the following particulars:

Female.—Length 1.8 mm. Eyes apparently entirely bare; anterior margin of clypeus straight, without an impression at middle; fifth and sixth joints of funicle quadrate; forewing behind the submarginal vein and basad of the point where the vein curves forward to join the marginal vein bare or practically so, occasionally with a very few vestigial cilia; lateral folds of the propodeum sharply defined, the edge of the fold more or less cariniform; abdomen about as long as combined head and thorax, brownish black; antennal pedicel testaceous like the scape, flagellum brownish black; mandibles testaceous; scutellum not tinged with purple.

Male.—Length 1.65 mm. Like the male of *diprionis* except for the characters indicated in the key, and the fact that the antennal flagellum is pale brownish in color, the scape very pale yellowish.

Type locality.—Natoma, Sacramento County, Calif.

Type.—U. S. N. M. No. 52892.

Described from 18 females and 2 males, reared by Albert Koebele in January, 1888,? from cocoons of what was in all probability *Caliroa cerasi* (L.) feeding on pear at Natoma, Calif., and recorded under Bureau of Entomology note No. 69°. Several of the specimens in the type series are rather badly broken but a few are complete.

CHEIROPACHUS Westwood.

Tropidogastra Ashmead, Mem. Carnegie Mus., vol. 1, 1904, p. 223. (New synonymy).

Tropidogastra was described by Ashmead in a generic key and *T. arizonensis* Ashmead cited as the type species. Examination of the type specimen of *arizonensis* has shown that it agrees in all essential generic characters with the type species of *Cheiropachus*, *C. colon* (L.), and hence *Tropidogastra* should be considered a synonym of *Cheiropachus*.

The following key will help in the recognition of the three species of *Cheiropachus* thus far known from North America.

KEY TO THE NORTH AMERICAN SPECIES OF CHEIROPACHUS.

1. Females.....2
   Males.....4
2. Forewing with two large fuscous spots or incomplete bands, one at the apex of submarginal vein, the other adjacent to the postmarginal vein; front femora usually with a distinct notch in its ventral margin near apex.....3
   Forewing hyaline or with only an obscure fuscous band across the angle formed by postmarginal and stigmal veins, rarely with a slight discoloration at the apex of submarginal vein; front femora greatly swollen but its ventral margin without a notch before the apex.....*arizonensis* (Ashmead).
3. Propodeum between the spiracles weakly sculptured, usually without

definite alveolae; frons laterad of the scrobes with shallow alveolate sculpture.....*colon* (Linnaeus).

Propodeum between the spiracles more strongly sculptured, this sculpture taking the form of rather definite alveolate punctures; frons laterad of scrobes more deeply and irregularly alveolate..... *brunneri* Crawford.

4. Marginal vein very slightly longer than stigmal; front femur usually with a distinct notch in its ventral margin near apex.....5

Marginal vein one and one-half to two times as long as stigmal; front femur without a notch in ventral margin; legs including all coxae reddish testaceous; forewings with two conspicuous fuscous bands.... *arizonensis* (Ashmead).

5. Propodeum without definite alveolate sculpture; legs, including all coxae, mostly reddish testaceous .....*colon* (Linnaeus).

Propodeum with definite alveolate sculpture; legs, including all coxae, brownish black.....*brunneri* Crawford.

Cheiropachus arizonensis (Ashmead), new combination.

Tropidogastra arizonensis Ashmead, Mem. Carnegie Mus., vol. 1, p. 323, 1904.
Dinarmus arizonicus Girault, Ins. Inscit. Mens., vol. 4, p. 109, 1916.

The type of *Tropidogastra arizonensis* is a female specimen collected by Hubbard and Schwarz in the Santa Rita Mountains, Ariz., June 19, 1898. The only description of it by Ashmead is that given in the generic key. The same specimen was redescribed by Girault under the name *Dinarmus arizonicus*.

It differs from *Dinarmus*, however, by having six instead of five joints in the funicle, by having the anterior and posterior femora much more swollen, and by having the posterior margin of the pronotum much more deeply concave. The generic characters ally it unmistakably with *Cheiropachus colon* (L.) and the species is therefore transferred to *Cheiropachus*.

Besides the type specimen there are now in the collection of the United States National Museum the following specimens which I have assigned to the species *arizonensis:* 7 females and 7 males from Dallas, Tex., reared from red cedar by F. C. Bishopp and bearing Hopk. U. S. No. 9929q–2; 6 females and 3 males reared at Dallas, Tex., April, 1922, from ? *Phloesinus* in red cedar, also by F. C. Bishopp; 5 specimens from Alturas, Calif., reared by F. P. Keen from *Juniperus occidentalis*, June 27, 1929, under Hopk. U. S. No. 18164–C, and 2 specimens from the same locality, reared by the same collector from *Cercocarpus ledifolius*, June 26, 1929, under Hopk. U. S. No. 18154–C; 4 specimens from Terrebonne, Oreg., reared from *Juniperus occidentalis*, August 20, 1930, by F. P. Keen under Hopk. U. S. No. 18199–b; 8 specimens from Princeville, Oreg., reared from *Phloesinus* sp. in *Juniperus*, by W. J. Buchhorn under Hopk. U. S. Nos. 18972–C and 18976–C; and 6 specimens from Bandolier, N.

Mex., reared from *Juniperus*, December 21, 1934, by D. De Leon under Cage No. 447.

In the male sex this species greatly resembles the males of *colon* and can be distinguished only by the absence of any notch on the ventral margin of the front femora and by the relatively longer marginal vein. The forewings are banded precisely as in *colon*. The females may have the forewings entirely hyaline or there may be a slight infuscation at the base of postmarginal vein.

TOMICOBIA Ashmead.

Tomicobia Ashmead, Proc. Ent. Soc. Wash., vol. 4, p. 203, 1899; Mem. Carnegie Mus., vol. 1, p. 283, 1904.

Ipocoelius Ruschka, Ent. Tidskr., H. 1, p. 6, 1924. (New synonymy.)

Tomicobia was first described by Ashmead in a key to genera of Cleonymidae but without inclusion of any species. In his Classification of the Chalcid-flies of the Superfamily Chalcidoidea (1904) Ashmead again included it in his key to the genera of Cleonymidae and named as the genotype *T. tibialis* Ashmead but gave no description of the species other than that contained in the generic key. Apparently the only other reference to the species in literature is a short note by A. D. Hopkins (Proc. Ent. Soc. Wash., vol. 15, 1913, p. 160) stating that it is parasitic upon adult scolytid beetles of the genus *Ips*. One undated specimen in the United States National Museum reared by Hopkins in West Virginia and bearing his No. 7188b is labeled type.

Ipocoelius was described by Ruschka in the tribe Pteromalini with two included species, viz, *I. seitneri* Ruschka, a parasite of *Ips typographus* (L.) in Sweden, Austria, and Bavaria, and *I. rotundiventris* Ruschka, parasitic upon *Otiorhynchus ligustici* (L.) in Sweden. Both species were said to attack their hosts in the adult stage. Two paratypes of *I. seitneri* are in the U. S. National Museum, obtained through an exchange with the Naturhistorischen Museum in Vienna.

The type of *Tomicobia tibialis* and the paratypes of *Ipocoelius seitneri* were recently compared and found to be undoubtedly congeneric. The two species are extremely similar. I am able to distinguish them only by the fact that in *seitneri* the postmarginal vein is about one and one-half times as long as the stigmal while in *tibialis* the postmarginal is not more than one and one-fourth times the length of the stigmal. In other respects they appear to be exactly alike.

Several specimens reared by D. De Leon from *Ips oregoni* (Eichh.) on lodgepole pine at Coeur d'Alene, Idaho, in May, 1929, under Hopkins U. S. No. 19744 were identified by the writer as *Ipocoelius*, n. sp. Additional specimens were sub-

sequently received from the same locality, reared from the same host by H. J. Rust in June, 1932, and April, 1933, under Hopkins U. S. No. 19994. More recently one specimen reared from *Ips confusus* (Lec.) in Sequoia National Park, Calif., November 4, 1934, and another taken on *Pinus ponderosa* in the same locality were sent in by L. F. Cook, and there are five additional specimens in the National Museum collection taken at Asheville, N. C., October 7, 1925, by A. H. MacAndrews. I am unable to distinguish more than one species in all this material and believe it all to be referable to *Tomicobia tibialis* Ashmead.

As represented by this series of 23 specimens, *Tomicobia tibialis* shows considerable variation both in minor details of structure and in color. The funicle joints are usually subquadrate but may be somewhat longer than broad. The propodeum may have a complete though weak median longitudinal carina or this carina may be entirely lacking. The scape in some cases is yellowish testaceous but often almost wholly dark brown. The legs vary from wholly brownish black, except the tarsi, which are always more or less testaceous, to largely reddish testaceous with only the coxae black and the femora dark brown. Head and thorax with fine, shallow alveolate sculpture; propodeum between the spiracles more deeply sculptured, laterad of spiracles nearly smooth; spiracles short elliptical; abdomen smooth, ovate, about as long as thorax, with a prominent hypopygium which extends to the apex of abdomen. Face dark metallic green; rest of head, thorax and abdomen greenish black with a slight aeneous tint. Wings hyaline, venation brownish testaceous. Flagellum black.

Amblymerus verditor (Norton).

Platyterma ecksteinii Wolff, Zeitschr. f. Angew. Ent., vol. 3, p. 168, 1916. (New synonymy.)

A specimen of *Platyterma ecksteinii* Wolff, obtained through an exchange with the Naturhistorisches Museum of Vienna, has been compared with the type and other American material of *Amblymerus verditor* (Norton) and found to agree exactly. Wolff's species, which is said to parasitize *Lophyrus pini* L., is to be considered a synonym of *verditor* (Norton).

HETEROSCHEMA Gahan.

Proc. U. S. Natl. Mus., vol. 55, p. 126, 1919.

This genus resembles *Psilocera* Walker but differs by having three subequal ring joints instead of two in the antennae, the flagellum more nearly cylindrical instead of strongly incrassated toward apex, the anterior margin of clypeus squarely truncate or weakly bidentate instead of strongly bidentate, and the

hypopygium never extending to the apex of abdomen. It is also similar to *Toxeumella* Girault, from which it differs by having the clypeus much less prominent, the cheeks not hollowed out at the base of mandibles, the ocellocular line shorter than the postocellar line or at least not longer, and the head much more strongly transverse. It is probably closest to *Eurydinoteloides* Girault, from which it may be distinguished by the immargined occiput, by the shorter abdomen, which is rarely a little longer than the combined head and thorax, and by the incomplete parapsidal grooves.

Heteroschema rugosopunctata (Ashmead), new combination.

Pteromalus rugosopunctatus Ashmead, Jour. Linn. Soc. London, Zool., vol. 25, p. 165, 1894; Dalla Torre, Cat. Hymen., vol. 5, p. 146, 1898; Ashmead, Trans. Ent. Soc. Lond., p. 343, 1900.

Heteroschema prima Gahan, Proc. U. S. Natl. Mus., vol. 55, p. 126, 1919. (New synonymy.)

Pteromalus rugosopunctatus was described from specimens collected on the islands of St. Vincent and Grenada. Paratypes of the species which are in the U. S. National Museum have been compared with the types of *Heteroschema prima*, type species of *Heteroschema* Gahan, and found to agree apparently in every respect. *H. prima* was originally reared at Tempe, Ariz., from *Agromyza gibsoni* Malloch and has been known only from the type specimens. The writer was led to make the comparison of types of *P. rugosopunctatus* and *H. prima* by receipt of a single specimen reared from a flowerhead of *Helianthus* at Santiago de Las Vegas, Cuba, by S. C. Bruner. This specimen was first recognized as *Heteroschema prima* and a later search of the collection of West Indian Hymenoptera showed it to agree also with *Pteromalus rugosopunctatus*. Subsequently two additional specimens reared at Santiago de las Vegas, Cuba, by L. C. Scaramuzza in 1937 from a dipterous pupa were identified as this species. Two specimens received from C. H. Ballou, taken on *Ipomoea tiliacea* at San Pedro de Oca, Costa Rica, also appear to be *rugosopunctatus*.

Heteroschema punctata (Ashmead), new combination.

Glyphe punctata Ashmead, Jour. Linn. Soc. London, Zool., vol. 25, p. 162, 1894.

Gastrancistrus punctatus Dalla Torre, Cat. Hymen., vol. 5, p. 204, 1898.

? *Glyphe punctata* Ashmead, Trans. Ent. Soc. Lond., p. 344, 1900.

Paratypes of *Glyphe punctata* in the National Museum collection do not belong in the genus *Gastrancistrus* Westwood, of which *Glyphe* Walker is a synonym. Instead they are congeneric, in my opinion, with *Heteroschema rugosopunctata* (Ashmead), which, as I have just shown, is identical with the type species of *Heteroschema* Gahan.

(*Glyphe*) *Heteroschema punctata* was originally described from the islands of St. Vincent and Grenada. I have received two specimens of it reared by S. C. Bruner at Santiago de Las Vegas, Cuba, August 4, 1933, from *Helianthus* heads. Other specimens in the collection, which I have identified as this species, are as follows: Five specimens from Cocoa, Fla., March 18, 1930, on *Melanthera niver* (L.), Conner coll.; five specimens from St. Louis, Mo., reared in June, 1928, from an unidentified insect on *Helianthus pitcheriana*, by A. F. Satterthwaite; and two specimens from St. Louis, Mo., reared in July, 1930, from *Agromyza virens* Loew, infesting *Heliopsis*, by A. F. Satterthwaite.

This species is similar to *Heteroschema rugosopunctata* (Ashmead) but may be distinguished at once by its darker legs and by the abdomen, which is a little longer than the head and thorax, strongly compressed, its anterior ventral angle prolonged forward under the thorax to reach the front coxae, the hypopygium prominent but not attaining the apex of the abdomen. The legs are black, with the bases and apices of tibiae narrowly and the tarsi, except the apical joint, pale.

PSEUDOMICROMELUS Gahan and Fagan.

Pseudomicromelus Gahan and Fagan, U. S. Natl. Mus. Bull. 124, p. 124, 1923.
Micromelus Dalla Torre, Cat. Hymen., vol. 5, p. 184, 1898. (Not *Micromelus* Walker.)

This generic name was proposed in the Catalog of type species of the genera of Chalcidoidea for *Micromelus* Dalla Torre, not Walker, Dalla Torre having listed *Micromelus* both as a synonym of *Baeotomus* (p. 89) and as a good genus (p. 184). *Baetomus* Foerster and *Micromelus* Walker were both shown to be synonyms of *Callitula* Spinola, the three genera having the same species as genotype, viz, *Callitula bicolor* Spinola (= *Micromelus rufomaculatus* Walker). *Micromelus silanus* Walker was named as the type species of *Pseudomicromelus*.

At the time the generic name was proposed the genotype species of *Pseudomicromelus* was unknown to the writer except by the description, but it has since been studied. The type of *silanus* is a female in the British Museum general collection in good condition except that the antennae are partly missing.

This type is a pteromalid congeneric with *Pteromalus deplanatus* Nees and very closely resembling that species. The following incomplete notes on Walker's type were made at the time it was examined:

Head viewed from in front narrowed below the eyes, subtriangular; antennae inserted below the eyes, very near the

clypeus; antennae with three very small ring joints, the funicle therefore five-jointed; pronotum short; parapsidal grooves extending to middle of mesoscutum but very delicately impressed; propodeum short, with distinct median carina and complete lateral folds; abdomen circular, a little broader than long; stigmal and postmarginal veins equal or very nearly so, and each approximately half as long as marginal.

Pseudomicromelus silanus (Walker).

Micromelus silanus Walker, Ann. & Mag. Nat. Hist., vol. 12, p. 46, 1843.
Micromelus silvanus Dalla Torre, Cat. Hymen., vol. V, p. 184, 1898.
Pseudomicromelus silvanus Gahan & Fagan, U. S. Natl. Mus. Bull. 124, p. 89, 1923.

The name of this species was changed by Dalla Torre from *silanus* to *silvanus*. Whether this was intentional or a typographical error is not apparent. Dalla Torre's spelling of the name was also used by Gahan and Fagan in the catalog of type species of Chalcidoidea.

The type was collected, according to Walker, at Mount Wellington, in Tasmania, by C. Darwin.

Pseudomicromelus australia (Girault), new combination.

Dibrachys australia Girault, Ins. Inscit. Mems., vol. 5, p. 145, 1917.

The types of this species are in the U. S. National Museum and are strictly congeneric with *silanus* Walker. They appear to agree with the foregoing notes on *silanus* as well as with Walker's description except that the marginal vein is less than twice as long as the stigmal vein and the abdomen is a little longer than broad. Antennae short, moderately clavate, gradually increasing in thickness from pedicel to club, third antennal joint very small, fourth and fifth broader but strongly transverse, the latter nearly as broad as sixth or first true funicle joint, which is also transverse but distinctly longer than the fifth; seventh, eighth, and ninth joints slightly broader than long, the tenth subquadrate; club not much thicker than the last funicle joint and nearly as long as the four preceding joints combined.

This species does not resemble a *Dibrachys* and is excluded from that genus by the absence of any marginal carina on the occiput, by the short subcircular abdomen, and by antennal characters.

The types were reared from *Carpocapsa pomonella* (L.) at Glen Innes, New South Wales.

Pseudomicromelus deplanatus (Nees).

Pteromalus deplanatus Nees, Hymen. Ichneum. Affin. Monogr., vol. 2, p. 110, 1834.

Pteromalus domesticus Walker, Ent. Mag., vol. 2, p. 481, 1835.

Pseudomicromelus deplanatus Keifer & Jones, Calif., Dept. Agr. Mo. Bull., vol. 22, p. 388, 1933.

This common European species does not belong in the genus *Pteromalus* but has apparently been allowed to remain there because it did not seem to fit into any other described genus. Eight specimens obtained through the late Dr. James Waterston and determined by him are, in the writer's opinion, congeneric with *silanus* Walker. The only respect in which they differ that could in any way be considered generic is the fact that in *silanus* the antennal sockets are separated from the posterior margin of the clypeus by a distance scarcely greater than the diameter of a socket, and in *deplanatus* they are a little farther above the clypeus, although on or below a line connecting the lower extremities of the eyes. The marginal vein in *deplanatus* is shorter in proportion to the length of the stigmal vein than in *silanus* but this difference is so slight as to be of little generic significance.

It is possible that *deplanatus* may eventually be found to fall in some earlier proposed genus, in which case *Pseudomicromelus* will become a synonym. For the present it can very well rest in *Pseudomicromelus*.

The Waterston-determined specimens were compared by the writer with specimens in the Ratzeburg collection at Eberswalde, Germany, and found to agree with Ratzeburg's determination of *deplanatus*. The types of Walker's *Pteromalus domesticus* in the British Museum were also found to agree perfectly with *deplanatus*, as did specimens in the Deutches Entomologisches Museum identified as *P. domesticus* by Ruschka. *P. domesticus* has been recognized as a synonym by various European writers.

Pseudomicromelus deplanatus is apparently a common species in Europe and has been frequently mentioned as a parasite of *Tortrix viridana* (L.). It was originally recorded by Nees as a parasite of another tortricid, viz, *Loxotaenia xylosteana* (L.).

The writer received a series of 17 specimens reared in May, 1932, by H. H. Keifer at Marysville, Calif., from *Anarsia lineatella* Zeller which agree perfectly with the specimens from England. My identification of the parasite using the new generic combination was published by Keifer and Jones in 1933. The species had not previously been known to occur in America. *Anarsia lineatella* is known to occur in Europe but apparently it has not been recorded as a host to *deplanatus* there. How the parasite became established in California is not known.

Halticoptera stella Girault.

Halticoptera stella Girault, Descriptiones Hymenopterorum Chalcidoidicarum Variorum cum Observationibus, vol. 3, 1917 (May), p. 1.
Megorismus poloni Girault, Psyche, vol. 24, p. 27 (June, 1917). (New synonymy).

Both of the above names were based upon specimens collected in August in Placer County, Calif., and evidently all originally formed one series. A comparison of the types fails to show any differences between them.

This species is very similar to *Halticoptera aenea* (Walker), but may be distinguished by the less metallic color of the head and thorax and the darker colored legs, all of the femora being black and the tibiae very dark brown or blackish. The malar space is longer than in *aenea* and the lateral angles of the pronotum, viewed from above, are distinctly more prominent.

Family EULOPHIDAE.

MELITTOBIA Westwood.

Melittobia Westwood, Trans. Ent. Soc. Lond., vol. 5, Proc., p. xviii and p. lxv, 1847.
Aceratoneuromyia Girault, Ins. Insc. Mens., vol. 5, p. 151, 1917. (New synonymy.)

Aceratoneuromyia australia Girault, type of the genus *Aceratoneuromyia*, as shown beyond, is a synonym of *Melittobia indicum* Silvestri. Hence the Girault genus is a synonym of *Melittobia*.

Melittobia indicum (Silvestri).

Syntomosphyrum indicum Silvestri, Boll. Lab. Zool. R. Scuola Agr. Portici, vol. 4, p. 232, 1910.
Melittobia indicum Kurdjumov, Rev. Russe d'Entom., vol. 13, p. 245, 1913.
Aceratoneuromyia australia Girault, Ins. Insc. Mens., vol. 5, p. 151, 1917. (New synonymy.)

I have compared cotypes of *Melittobia indicum* Silvestri in the United States National Museum collection with the type material of *Aceratoneuromyia australia* Girault in the same collection and find the two series of specimens to agree in every respect. According to Silvestri the species was introduced from India into western Australia, whence came the type material of the Girault species.