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## H. SAUTER'S FORMOSA-COLLECTION:

### *BRACONIDAE*

By

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(With 6 Textfigures)

The species of *Braconidae* in SAUTER'S Formosa-collection have been studied by G. ENDERLEIN<sup>1)</sup> and C. WATANABE.<sup>2)</sup> In the present paper is given a list of *Braconidae* as represented in SAUTER'S Formosa-collection, sent to the writer for examination from the Deutsches Entomologisches Institut in Berlin-Dahlem; in the material there are 23 species including 11 new ones which ought to be added to the Braconid-fauna of Formosa.

All holotypes and all allotypes are deposited in the Deutsches Entomologisches Institut, and some of the other specimens which are not single are retained for the Entomological Institut of the Hokkaido Imperial University.

The writer wishes to acknowledge his indebtedness to Professor Emeritus S. MATSUMURA and Assistant Professor T. UCHIDA for their kind direction. By courtesy of Mr. J. SONAN the writer was so fortunate as to have been able to see some of his types of *Chelonus* and *Chelonella* species described from Formosa. In this occasion the writer wishes to express his gratitude to Mr. J. SONAN for his co-operation.

Family *Braconidae*

Subfamily *Braconinae*

Tribe *Braconini*

Genus *Campyloneurus* SZÉPLIGETI

*Campyloneurus* SZÉPLIGETI, Term. Füz., XXIII, p. 51 (1900).

#### 1. *Campyloneurus cingulicauda* ENDERLEIN

*Campyloneurus cingulicauda* ENDERLEIN, Arch. Naturgesch., 84 A, 11. Heft, p. 105, ♀ (1920).

♂. Closely resembles the female in general structure and colour, but the 6th to 8th tergites entirely black.

Length 5.5-7.5 mm.

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1) Arch. Naturgesch., 73 A, 2. Heft, pp. 1-37 (1912); Ent. Mitt., pp. 157-167 (1912); Arch. Naturgesch., 84 A, 11. Heft, pp. 51-244 (1920).

2) Ins. Mats., IV, pp. 184-189 (1932); l. c., VIII, pp. 119-123 (1934).

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[Ins. Mats., Vol. VIII, No. 4, July, 1934]

Habitat: Koshun (1 ♀, 22/iv, 1912; 1 ♂, v, 1912; 1 ♂, vi 1912)—Kosempo (1 ♂, v, 1912)—Taihorin (1 ♂, 7/vii, 1912).

Gen. Distr.: Formosa.

Genus *Merinotus* SZÉPLIGETI

*Merinotus* SZÉPLIGETI, Ann. Mus. Nat. Hung., IV, p. 553 (1906).

2. *Merinotus taiwanus* nov. sp.

♀. Head reddish yellow; stemmaticum, mandibles at the tips, antennae black; thorax black, the propleurae anteriorly yellow; wings slightly infuscate, an irregular hyaline streak runs outwards from the base of the stigma; stigma and veins brown; fore legs yellow; middle and hind legs dark brown to black; abdomen black; belly tinged with yellowish white; 5th and the following tergites whitish yellow at each hind margin; ovipositor reddish brown, the sheath black, with black pubescence uniformly.

Head cubical, smooth and shining; frontal depression deep, with a weak median carina; antennae shorter than the body, 40 jointed, with a short plate at the outside of the base; scapus stout, twice as long as broad, with a blunt tooth at the apex, the lower surface obliquely truncate; 1st joint of the flagellum as long as the 2nd. Thorax smooth and shining, with white pubescence; parapsidal furrows present; propodeum smooth and shining, with no median carina. First abscissa of the radius as long as one fifth of the 2nd; 1st intercubitus oblique; recurrent nervure interstitial or just received in the 1st cubital cell; 1st abscissa of the cubitus slightly curved inwardly, not bent at the base. Fore tarsi slender, twice as long as the tibiae. Abdomen a little longer than the head and thorax taken together; 1st tergite about twice as long as broad at the apex, deeply grooved laterally, limited externally by a carina, the median raised area reticulate-rugose, with a weak longitudinal median carina; 2nd tergite quadrate, with three basal raised areae, which are smooth and shining, the median one small, triangular; 3rd tergite transverse, the area bounded by an impression at the anterior corner, being large, nearly smooth; 2nd to 4th tergites longitudinally striate, the remainder very short, smooth and shining; 2nd suture broad, crenulate; ovipositor longer than the body; hypopygium sharply acute, hardly surpassing the apex of the abdomen.

Body-length 7.5-9 mm., ovipositor-length 8.5-10.5 mm.

♂. Closely resembles the female in general structure and colour, but differs from the latter in the following points:

1) Antennae slenderer, 40 jointed. 2) Fore and middle legs with the coxae reddish yellow. 3) Abdomen slenderer.

Length 6 mm.

Holotype: ♀, Hoozan, 7/ix, 1910.

Allotype: ♂, Kosempo, vi, 1912.

Paratypes: Kosempo (4 ♂ ♂, vii, 1908; 1 ♀, x, 1911; 2 ♂ ♂, vi, 1912)—Hoozan (5 ♀ ♀, 7/ix, 1910; 1 ♀, v, 1911)—Koshun (1 ♂, iv, 1912)—Fusho (2 ♀ ♀, vii, 1909)—Taihorin (1 ♀, ii, 1910).

Habitat: Hoozan, Kosempo, Koshun, Fusho, Taihorin (Formosa).

This species resembles *Merinotus gibber* ENDERLEIN (Arch. Naturgesch., 84 A, p. 65, ♀, 1920), but it differs from the latter in having the thorax black, the scapus twice as long as broad.

#### Genus *Chelonogastra* ASHMEAD

*Chelonogastra* ASHMEAD, Proc. U. S. Nat. Mus., Vol. 23, p. 139 (1900).

*Monocoila* ROMAN, Ent. Tidschr., Vol. 31, p. 133 (1910).

*Ectemnoplax* ENDERLEIN, Arch. Naturgesch., 84 A, p. 110 (1920).

#### \*3. *Chelonogastra koebeli* ASHMEAD

*Chelonogastra koebeli* ASHMEAD, Proc. U. S. Nat. Mus., Vol. 30, p. 195, ♀, Pl. XIV, fig. 3 (1906); FAHRINGER, Opusc. Bracon. Bd. I, p. 591, ♀ (1928).

♂. Closely allied to the female in general structure and colour.

Habitat: Koshun (2 ♂ ♂, 7/iv, 1912).

Gen. Distr.: Japan, Formosa.

#### 4. *Chelonogastra peruliventris* (ENDERLEIN)

*Ectemnoplax peruliventris* ENDERLEIN, Arch. Naturgesch., 84 A, p. 110, ♀ ♂ (1920).

Habitat: Koshun (1 ♀, iv, 1912; 4 ♀ ♀, vi, 1912; 3 ♀ ♀, vii, 1912; viii, 1912; 1 ♀, ix, 1912).

Gen. Distr.: Formosa.

#### \*5. *Chelonogastra pleuralis* ASHMEAD

*Chelonogastra pleuralis* ASHMEAD, Proc. U. S. Nat. Mus., Vol. 30, p. 196, ♀ (1906); FAHRINGER, Opusc. Bracon., Bd. I, p. 591, ♀ (1928).

In a series of Formosan specimens the fuscous markings are almost obsolete.

Habitat: Koshun (2 ♀ ♀, vi, 1912)—Taihorinsho (1 ♀, viii, 1909).

Gen. Distr.: Japan, Formosa.

#### Genus *Stenobracon* SZÉPLIGETI

*Stenobracon* SZÉPLIGETI, Term. Füz., XXIV, p. 359 (1901).

#### 6. *Stenobracon trifasciatus* SZÉPLIGETI

*Stenobracon trifasciatus* SZÉPLIGETI, Notes Leyden Mus., Vol. 20, p. 214, ♀ (1903); WATANABE, Trans. Sapporo Nat. Hist. Soc., Vol. 12, p. 64, ♀ ♂ (1932).

*Stenobracon maculata* MATSUMURA, Schäd. u. Nütz. Ins. Zucker. Pflanz. Formosa., pp. 50 & 84, ♀, Pl. XXX, fig. 8 (1910).

\* This species is the first record to the Braconid-fauna of Formosa.

*Macrocentrus javanicus* ISHIDA, Kansho Meichu Chosa Hokoku, I, p. 109, ♀ ♂ (1915).

*Hemibracon elegantulus* ENDERLEIN, Arch. Naturgesch., 84 A, p. 62, ♀ ♂ (1920).

Habitat: Hoozan (3 ♀ ♀, 1 ♂, 7/iv, 1910)—Polisha (Horisha) (1 ♀, 7/iv, 1909).

Gen. Distr.: Java, Sumatra, Philippines, China, Formosa.

### Genus *Shirakia* VIERECK

*Shirakia* VIERECK, Proc. U. S. Nat. Mus., Vol. 44, p. 613 (1913).

#### 7. *Shirakia schoenobii* VIERECK

*Bracon dorsalis* MATSUMURA (nec BRULLÉ, 1846), Schädli. u. Nützl. Ins. Zucker. Pflanz. Formosa, pp. 49 & 84, ♀, Pl. XXX, fig. 7, ♀ (1910).

*Shirakia schoenobii* VIERECK, Proc. U. S. Nat. Mus., Vol. 44, p. 613, ♀ ♂ (1913); WATANABE, Trans. Sapporo Nat. Hist. Soc., Vol. 12, p. 63, ♀ ♂ (1932).

Habitat: Koshun (1 ♀, iv, 1912; 1 ♂, vii, 1912)—Hoozan (2 ♂ ♂, 7/ix, 1911).

Gen. Distr.: Formosa.

#### 8. *Shirakia jokohamensis* (CAMERON)

*Bracon jokohamensis* CAMERON, Int. Zeitschr. Ent., Guben, p. 288, ♂ (1910); FAHRINGER, Opusc. Bracon., Bd. I, p. 321, ♂ (1927).

*Campyloneurus jokohamensis* MATSUMURA, 6000 Ill. Insect. Japan-Empire, p. 73 fig. 400, ♀ (1931).

Habitat: Koshun (1 ♀, vii, 1912).

Gen. Distr.: Japan, Formosa.

### Genus *Bracon* FABRICIUS

*Bracon* FABRICIUS, Syst. Piez., p. 102 (1804).

*Amyosoma* VIERECK, Proc. U. S. Nat. Mus., Vol. 44, p. 640 (1913).

#### 9. *Bracon chinensis* SZÉPLIGETI

*Bracon chinensis* SZÉPLIGETI, Term. Füzet., XXV, p. 30, ♂ (1902).

*Amyosoma chionis* VIERECK, Proc. U. S. Nat. Mus., Vol. 44, p. 640, ♀ ♂ (1913).

*Agathis noiratum* ISHIDA, Kansho Meichu Chosa Hokoku, p. 102, ♀ (1915).

*Bracon (Amyosoma) chinensis* WATANABE, Trans. Sapporo Nat. Hist. Soc., Vol. 12, p. 65, ♀ ♂ (1932).

Habitat: Koshun (1 ♀, vi, 1912)—Taihorin (2 ♂ ♂, 1911)—Hoozan (7 ♂ ♂, 7/ix, 1911).

Gen. Distr.: China, Okinawa, Korea, Formosa.

#### 10. *Bracon kuro* nov. sp.

♀. Black; head and thorax sometimes dark brown; palpi reddish yellow to brown; wings infuscate, the stigma and the veins black; belly tinged with yellowish white; ovipositor brownish red, the sheath black.

Head subcubical, smooth, with white pubescence; front with a median longitudinal furrow; antennae a little shorter than the body, 37-41 jointed. Thorax smooth, with white pubescence; parapsidal furrows shallow, smooth; propodeum smooth and shining, with no median carina. Radius inserted in

the apical two fifths of the stigma, reaching the apex of the wing; 1st abscissa of the radius as long as  $2\frac{1}{2}$  times that of the 2nd; 1st intercubitus oblique, a little shorter than the 1st abscissa of the cubitus; 2nd intercubitus vertical, decoloured; recurrent nervure just received in the 1st cubital cell; nervulus interstitial; axillary nervure of the hind wing bent at the apical third; hind legs stout, the tibiae somewhat flattened, longer than the femora; hind tibial spurs subequal, slightly curved, as long as the 3rd joint of the hind tarsus; 1st joint of the hind tarsus as long as the 2nd to 4th joints united. Abdomen long-oval, closely reticulate-rugose; 1st tergite a little longer than broad, parallel-sided, with an oblique crenulate furrow at each side, the following tergite transverse, the 2nd longer than the 3rd; 2nd suture straight, crenulate; 7th tergite smooth, shining; ovipositor as long as the abdomen; hypopygium sharply acute, hardly surpassing the apical segment.

Body-length 6 mm., ovipositor-length 3.5 mm.

♂. Closely resembles the female, but the antennae 37 jointed, and the palpi dark brown.

Length 5.5 mm.

Holotype: ♀, Koshun, v, 1912.

Allotype: ♂, Koshun v, 1912.

Paratypes: Koshun (1 ♂, 3 ♀, v, 1912).

Habitat: Koshun (Formosa).

This species may belong to FAHRINGER's Section *Triobracon* (Opusc. Bracon., Bd. I, p. 232, 1927).

#### 11. *Bracon koshunensis* nov. sp.

♀. Reddish yellow; antennae dark brown to black; 3rd to 5th tergites with a black spot at each side, sometimes fuscous laterally; wings hyaline, the stigma and the veins brown; ovipositor brownish red, the sheath black.

Head transverse, rugose; face shallowly punctate; antennae shorter than the body, 37-46 jointed; scapus short, cylindrical; 1st joint of the flagellum as long as the 2nd. Thorax finely punctate-rugose; parapsidal furrows distinct, nearly smooth; propodeum rugose as on the thorax, with a strong longitudinal median carina. Radius inserted in the basal two fifths of the stigma, reaching the apex of the wing; 1st abscissa of the radius as long as one third of the 2nd; 1st intercubitus oblique, nearly equal in length to the basal portion of the 1st abscissa of the cubitus; recurrent nervure inserted in the apical sixth of the 1st cubital cell; nervulus interstitial. First joint of the hind tarsus as long as the 2nd to 4th joints united, the 4th the shortest. Abdomen entirely reticulate-rugose; 1st tergite a little shorter than broad at the apex, with an irregular

oblique carina at each side; 2nd suture straight, crenulate; 6th tergite a little longer than the 5th, strongly emarginate medially as in *Chelonogastra*, and the following tergites retracted; ovipositor as long as two basal joints of the hind tarsus united, the sheath uniformly pubescent.

Body-length 5 mm., ovipositor-length 0.7 mm.

♂. Closely allied to the female in general structure and colour, but the antennae brownish yellow, longer and more slender, 49-50 jointed; 6th tergite slightly emarginate medially, with two black spots as in the preceding three tergites.

Length 5 mm.

Holotype: ♀, Koshun, vii, 1912.

Allotype: ♂, Koshun, vii, 1912.

Paratypes: Koshun (1 ♀, vi, 1912; 3 ♀ ♀, 1 ♂, vii, 1912; 2 ♀ ♀, viii, 1912).

Habitat: Koshun (Formosa).

This species is distinctly distinguished by the structure of the 6th tergite.

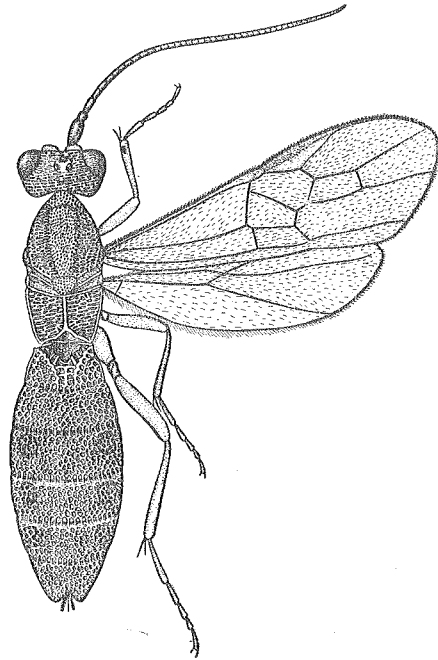


Fig. 1.

*Bracon koshunensis* nov. sp. (♀)

### Genus *Spinaria* BRULLÉ

*Spinaria* BRULLÉ, Hist. Nat. Ins. Hymén., Vol. 4, p. 512 (1846).

*Brownius* ASHMEAD, Can. Ent., p. 7 (1905).

#### \*12. *Spinaria spinator* (GUÉRIN)

*Bracon spinator* GUÉRIN, Duperry: Voy. Coquille Zool., II, p. 199 (1830).

*Spinaria spinator* BRULLÉ, Hist. Nat. Insect. Hymén., Vol. 4, p. 514 (1846); WESTWOOD, Tijdschr. v. Entom., XXV, p. 28 (1882); DALLA TORRE, Cat. Hymen., IV, p. 256 (1898); SZÉPLIGETI, Term. Füzet., XXV, p. 45 (1902); id., Gen. Insect., 22-24, p. 47 (1904); ENDERLEIN, Stett. Entom. Zeit., p. 231 (1905); WILKINSON, Bull. Entom. Res., XXI, p. 275 (1930).

Habitat: Koshun (1 ♀, v, 1912; 1 ♀, vi, 1912; 1 ♀, vii, 1912)—Kosempo (1 ♀, 7/vii, 1911)—Taihorin (1 ♂, 7/vii, 1911).

Gen. Distr.: India, Sula Besi, Sumatra, Malay, Formosa.

#### \*13. *Spinaria armator* (FABRICIUS)

*Bracon armator* FABRICIUS, Syst. Piez., p. 107 (1804).

*Spinaria armator* BRULLÉ, Hist. Nat. Insect. Hymén., IV, p. 513, (1846); WESTWOOD, Tijdschr.

v. Entom., XXV, p. 29 (1882); DALLA TORRE, Cat. Hymen., IV, p. 255 (1896); SZÉPLIGETI, Term. Füzet., XXV, p. 45 (1902); id., Gen. Insect., 22-24, p. 47 (1904).

Habitat: Taihorin (2 ♀♀, 7/vii, 1911)—Koshun (1 ♀, ix, 1912)—Paroe (1 ♂, ix, 1912).

Gen. Distr.: Sumatra, Java, Formosa.

Tribe *Exothecini*

Genus *Coeloreuteus* ROMAN

*Coeloreuteus* ROMAN, Ent. Tidskr., p. 112 (1910).

14. *Coeloreuteus formosanus* nov. sp.

♀. Yellowish red; antennae and abdomen fuscous; wings subhyaline, the stigma and the veins brown; ovipositor brownish red, the sheath fuscous.

Head transverse, smooth and shining; occiput weakly margined laterally; face with a weak median ridge; antennae slender, as long as the body, 28 jointed. Thorax smooth and shining; parapsidal furrows fine; propodeum reticulate-rugose, with two longitudinal carinae at the middle. Radius inserted at the apical two fifths of the stigma; 1st abscissa of the radius as long as one fourth of the 2nd; 2nd cubital cell longer than high; 1st intercubitus oblique, nearly equal in length to the 1st abscissa of the cubitus; recurrent nervure just received in the 2nd cubital cell; nervulus postfurcal, the basal portion of the 2nd abscissa of the medial nervure as long as one third of the apical portion; radius of the hind wings obsolete. Legs slender; 1st joint of the hind tarsus as long as the 3rd to 4th joints united. Abdomen as long as the head and thorax taken together, long-oval, smooth and shining; 1st tergite yellowish red, parallel-sided, a little longer than broad, slightly rugose, the remaining tergites transverse, the 2nd a little longer than the 3rd; sutures very fine; ovipositor as long as the abdomen, the sheath sparsely pubescent.

Body-length 3 mm., ovipositor-length 1.5 mm.

♂. Unknown.

Holotype: ♀, Tainan, 7/v, 1912.

Paratypes: Tainan (1 ♀, iii, 1912; 2 ♀♀, iv, 1912)—Chosokei (1 ♀, 1914).

This species resembles *Coeloreuteus brevicaudus* (SZÉPLIGETI) (Ann. Mus. Nat. Hung., III, p. 42, ♀, 1905) from Sydney (Australia), but it may easily be distinguished from the latter by the length of the ovipositor.

Tribe *Spathiini*

Genus *Spathius* NEES

*Spathius* NEES, Nova Acta Akad. Curios, IX, p. 301 (1818).

*Stenophasmus* SMITH, Journ. Proc. Linn. Soc. Zool., Vol. 3, p. 169 (1858).

**\*15 *Spathius apicalis* (WESTWOOD)**

*Stenophasmus apicalis* WESTWOOD, Tijdschr. v. Entom., XXV, p. 43, ♀ (1882).

*Spathius apicalis* WILKINSON, Trans. Entom. Soc. London, p. 519, ♀ ♂, fig. 7 (1931).

Habitat: Hoozan (1 ♀, 7/ix, 1910)—Koshun (2 ♀ ♀, 22 v, 1912)—Kosempo (1 ♀, 7/ix, 1911).

Gen. Distr.: Borneo, Formosa.

**16. *Spathius annuliventris* (ENDERLEIN)**

*Stenophasmus annuliventris* ENDERLEIN, Arch. Naturgesch., 78 A, 2. Heft, p. 11, ♀ (1912).

*Stenophasmus mimeticus* ENDERLEIN, l. c., p. 12, ♀ (1912) (syn. nov.).

In a series of the writer's female specimens the antennae are 24-25 jointed, variable in number, and the ovipositor is a little longer than a half of the abdomen.

♂. Closely resembles the female in general structure and colour, but the antennae slenderer, 23 jointed, and the 3rd tergite dull as in the 2nd.

Length 3 mm.

Habitat: Koshun (5 ♀ ♀, 5 ♂ ♂, vi, 1912).

Gen. Distr.: Formosa.

**\*17. *Spathius bisignatus* WALKER**

*Spathius bisignatus* WALKER, Ann. Mag. Nat. Hist., V, p. 309, ♀ ♂, (1860); WILKINSON, Trans. Entom. Soc. London, p. 510, ♀, Pl. XXXVIII, fig. 1 (1931).

*Spathius dinoderi* GAHAN, Philip. Journ. Sc., Vol. 27, p. 84, ♂, Pl. I, fig. 2 (1925).

Habitat: Koshun (1 ♀, vii, 1912).

Gen. Distr.: Ceylon, India, Philippines, Rodrigues Is., Formosa.

Further, the writer has received from Dr. T. ISHII a species of *Spathius*, which is recorded by him (Oyo-Dobutsu-Zasshi, Vol. 2, pp. 148-149, 1930) to be a parasite of *Chilo simplex* BUTLER in the Philippines; this may be *Spathius fuscipennis* ASHMEAD (Proc. U. S. Nat. Mus., Vol. 29, p. 119, 1905).

Tribe ***Hormiini***Genus ***Spathiohormius*** ENDERLEIN

*Spathiohormius* ENDERLEIN, Arch. Naturgesch., 78 A, 2. Heft, p. 21 (1912).

**18. *Spathiohormius sauteri* nov. sp.**

♀. Ferruginous; head rufous; antennae dark brown, the several basal joints yellowish; legs with the coxae reddish yellow; wings subhyaline, the stigma and the veins brown, the former at the basal third pale; ovipositor brownish red, the sheath black.

Head coriaceous, dull; face with a median ridge; antennae slender, longer than the body, 37-39 jointed. Thorax coriaceous as on the head; parapsidal furrows strongly marked, with a carina on each inner side; mesopleural furrow broad, crenulate; scutellum somewhat concave; metapleurae with three longitudinal carinae, with a sharply pointed tooth at the lower margin; propodeum coriaceous, laterally margined, a little longer than the 1st tergite, with three longitudinal carinae, the one being at the middle and the others at the sides. Radius inserted in two fifths from the apex of the stigma; 1st abscissa of the

radius shorter than a half of the 2nd; 1st intercubitus oblique, the 2nd vertical, decoloured; recurrent nervure received in the 2nd cubital cell at a short distance

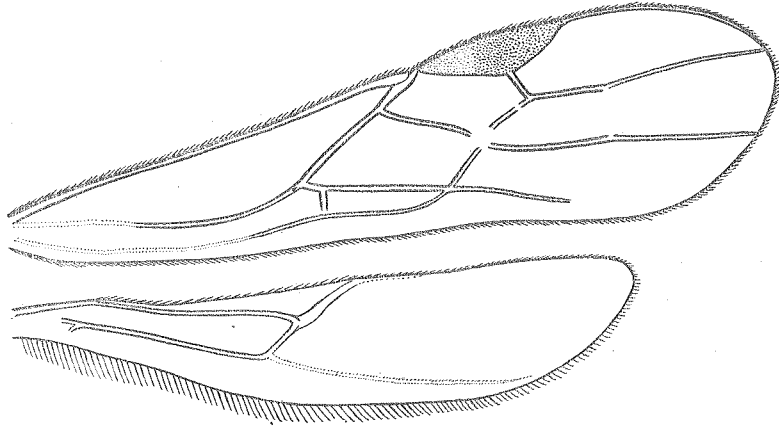


Fig. 2.

Wings of *Spathiohormius sauteri* nov. sp. (♀)

from the base; nervulus postfurcal by its own length; 1st abscissa of the medial nervure curved downward; radius of the hind wings slightly obsolete; hind coxae with a minute tooth below the base. Abdomen a little longer than the head and thorax taken together; 1st tergite subpetiolate,  $1 \frac{2}{3}$  times longer than broad at the apex; 2nd tergite longer than the 3rd, which is equal to the 4th in length; 5th large, longer than the 4th; 1st to 4th tergites laterally margined, coriaceous, and longitudinally striate; 5th only coriaceous, the remainder very short, smooth and shining; 2nd suture curved outward, crenulate; 3rd and 4th sutures straight, crenulate; ovipositor as long as the abdomen.

Body-length 4 mm., ovipositor-length 2 mm.

♂. Unknown.

Holotype: ♀, Anping, 7/viii, 1912.

Paratypes: Tainan (1 ♀, iv, 1912; 1 ♀, 7/v, 1912).

Habitat: Anping, Tainan (Formosa).

This species comes near to *Spathiohormius filicornis* ENDERLEIN (Arch. Naturgesch., 78 A, p. 22, ♀, 1912) from Ceylon, which appears to be evidently distinguished from the former in the following points: 1) Antennae 48 jointed. 2) Thorax, abdomen, coxae and femora of the four posterior legs black. 3) Larger species, 7 mm.

Tribe *Hecabolini*Genus *Eucorystes* MARSHALL*Corystes* REINHARD, Berlin. entom. Zeitschr., IX, p. 258 (1865) (nec LATREILLE, 1802).*Eucorystes* MARSHALL, Spec. Hymén. Europe, IV, p. 204 (1888).19. *Eucorystes formosanus* nov. sp.

♀. Reddish brown; head yellowish; antennae reddish yellow, darkened apically; legs with the coxae reddish yellow; wings subhyaline; stigma and veins brown, the former at the apex and the metacarp paler; ovipositor brownish red, the sheath black.

Head cubical; transversely striate-rugose with white pubescence; cheek smooth and shining; occiput margined, somewhat curved inward at the middle; antennae slender, more than 30 jointed (at the apex broken off), the scapus short, cylindrical; palpi long and slender. Thorax flat, closely reticulate-rugose; prothorax produced; parapsidal furrows almost obsolete; mesopleural furrows strongly marked, straight, smooth and shining; metapleurae and propodeum strongly reticulate-rugose, coarser than that of the mesonotum; propodeum with a small semicircular median area, surrounded by a carina at the apex. Radius inserted in the middle of the stigma; 1st abscissa of the radius short, as long as a half of the 1st intercubitus; 2nd abscissa of the radius curved outwardly, reaching nearly the apex of the wing, the radial cell being not narrow, nor cuneiform; recurrent nervure interstitial; 1st abscissa of the medial nervure curved; nervulus postfurcal; nervus parallelus not interstitial; radius of the hind wings subobsolete. Legs long and slender, with long whitish hairs; hind coxae cylindrical; 1st joint of the hind tarsus as long as the 3rd and 4th joints united. Abdomen long and slender, longer than the head and thorax taken together; 1st tergite subpetiolate,  $2\frac{1}{2}$  times as

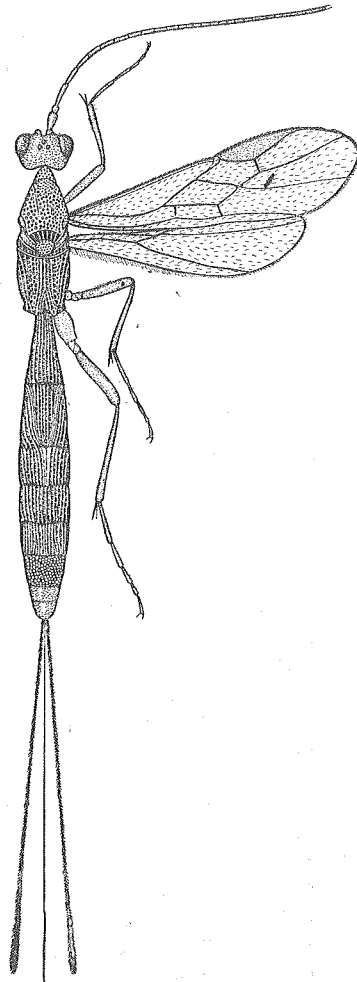


Fig. 3.

*Eucorystes formosanus* nov. sp. (♀)

long as broad at the apex; 2nd a little longer than the 1st, nearly parallel-sided, with two converging furrows and a crenulate transverse furrow at the apical third; 3rd to 5th tergites nearly quadrate, equal in length and the 6th shorter, transverse; 7th flat, narrowed towards the apex; 2nd suture at the middle obsolete; 1st to 3rd tergites closely longitudinally striate, the 1st with a smooth median knob at the apex, the following two tergites somewhat smooth at each hind margin; 4th to 6th tergites coriaceous, the remainder smooth and shining; ovipositor as long as the thorax and abdomen taken together, the sheath dilated at the apex.

Body-length 8 mm., ovipositor-length 6.5 mm.

♂. Unknown.

Type: ♀, Koshun, iv, 1912.

Paratype: Koshun (1 ♀, iv, 1912).

Habitat: Koshun (Formosa).

This species differs from *Eucorystes aciculatus* (REINHARD) (Berlin. entom. Zeitschr., IX, p. 259, ♀, T. 3, fig. 7, 1865) in having the radius nearly reaching the apex of the wing, the radial cell not cuneiform, but the structure of the abdomen and some other characters resemble the latter.

### Tribe *Rhogadini*

#### Genus *Colastomion* BAKER

*Colastomion* BAKER, Philip. Journ. Sc., Vol. 12, p. 219 (1917).

#### 20. *Colastomion formosanum* (WATANABE)

*Cystomastax formosana* WATANABE, Ins. Mats., IV, p. 186, ♂, fig. 2 (1932).

On account of the greatly dilated, cylindrical maxillary palpi in the male, this species has been referred to *Cystomastax* SZÉPLIGETI<sup>(1)</sup>, but having received its female, the writer has become convinced that it ought be transferred to this genus.

♀. Very similar in general structure and colour to the male, but it differs from the latter in the following points:

- 1) Ground colour yellowish brown, lighter than that of the male.
- 2) Maxillary palpi long and slender, the 2nd joint as long as the 3rd and 4th united, somewhat flattened, the 3rd a little longer than a half of the 4th, which is a little shorter than the 5th.
- 3) Pronotum more coarsely reticulate-rugose.
- 4) Metapleural prominence more stoutly tipped.
- 5) Ovipositor reddish yellow, the sheath brown, as long as the 3rd joint of the hind tarsus.
- 6) Hypopygium elongate, deeper than the apical segment.

Body-length 10 mm., ovipositor-length 1 mm.

Habitat: Koshun (2 ♀ ♀, 3 ♂ ♂, 7/iv, 1912).

Gen. Distr.: Formosa.

This species is sufficiently distinguished from *Colastomion abdominalis* BAKER (Philip. Journ. Sc., Vol. 12, p. 291, ♀, 1917) from the Philippines in having the basal nervure of the hind wing inserted

(1) Gen. Insect., 22-24, p. 81 (1904).

in a short distance from the base of the radius.

### Genus *Gyroneuron* KOKUJEW

*Gyroneuron* KOKUJEW, Rev. Russe Ent., Vol. 1, p. 231 (1901).

As far as the writer's investigations go four species, *Gyroneuron mirum* KOKUJEW, *G. flavum* ENDERLEIN, *G. nigritarse* ENDERLEIN<sup>(1)</sup>, and *G. africanum* BRUES<sup>(2)</sup>, have been recorded from the Oriental and Ethiopian regions, but the two ENDERLEIN's species may be transferred to *Paragyroneuron* BAKER.

#### \*21. *Gyroneuron mirum* KOKUJEW

*Gyroneuron mirum* KOKUJEW, Rev. Russe Ent., Vol. 1, p. 232, ♀ (1901); SZÉPLIGETI, Gen. Insect, 22-24, p. 78, Pl. III, fig. 23 (1904); FAHRINGER, Opusc. Bracon., Bd. III, p. 210, ♀ (1931).

As a supplement to the original description the following characters may be added:

♀. Front smooth, shining, with two short curved carinae; face with a weak median longitudinal carina, continued from the base of the antennae to the middle; eyes emarginate opposite the antennae; metapleurae at the lower margin with a strong prominence, which extends into a blunt, curved tooth; 1st tergite at the lateral margins with each a spiracle, which is situated at the basal third; hind tibial spurs straight, pubescent.

Described from a female specimen from Formosa.

Habitat: Koshun (1 ♀, 22/V, 1912).

Gen. Distr.: Assam, Formosa.

#### 22. *Gyroneuron testaceator* nov. sp.

♂. Reddish yellow; stemmaticum, mandibles at the tips, pronotum at the apex, mesonotum on the lateral borders black; abdomen brownish yellow; wings hyaline; stigma and veins brown; ovipositor and its sheath yellow.

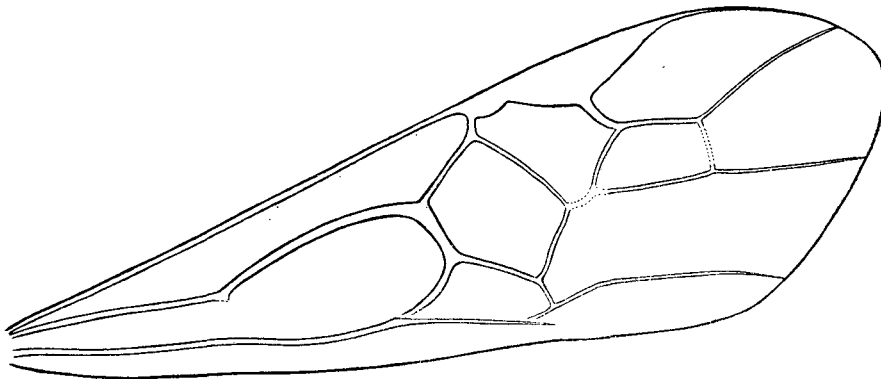


Fig. 4.

Fore wing of *Gyroneuron testaceator* nov. sp. (♀)

(1) Arch. Naturgesch., 84 A, p. 144-145 (1920).

(2) Ann. S. Africa Mus., p. 62 (1924).

Head smooth; front with a short longitudinal median carina; eyes large, emarginate opposite the antennae; maxillary palpi long and slender, 6 jointed. Prothorax striate; mesonotum smooth, laterally crenulate from the apex to the tegula; parapsidal furrows deep; scutellum smooth, anteriorly with two large foveae separated by a sharp median carina; mesopleurae smooth, with an oblique shallow furrow; metapleurae rugose, with a blunt curved tooth at the lower margin; propodeum finely rugose, with a lanceolate, wavy-margined, median area, the lateral teeth bluntly tipped; spiracles small, oval. Stigma twice as long as broad; radius inserted in the basal two fifths of the stigma; 1st abscissa of the radius short, as long as  $2\frac{1}{2}$  times the 2nd; 2nd cubital cell twice as long as high; 1st intercubitus oblique, slightly curved, and the 2nd decoloured; recurrent nervure received in the 1st cubital cell at a short distance from the apex; medial nervure strongly curved, swollen as well as nervulus; radius of the hind wings obsolete; nervulus oblique, slightly curved. Legs long, rather slender; hind tibial spurs straight, pubescent, a little shorter than the 2nd joint of the tarsus; 1st joint of the hind tarsus as long as the 2nd to 4th joints united. Abdomen a little longer than the head and thorax taken together; 1st tergite parallel-sided basally to the spiracles, which are situated at the basal fifth, thence generally broadened towards the apex,  $1\frac{1}{2}$  times longer than broad at the apex; 2nd tergite a little shorter than the 1st, subquadrate, the remaining tergites transverse; 1st to 3rd tergites thickly, longitudinally rugose, the basal two with a continuous longitudinal median carina; the following tergites dull, strongly pubescent; ovipositor as long as the 4th joint of the hind tarsi, the sheath uniformly pubescent.

Body-length 9 mm., ovipositor-length 1 mm.

♂. Unknown.

Type: ♀, Koshun, v, 1912.

Habitat: Koshun (Formosa).

This is easily distinguished from the preceding species in having the body-colour reddish yellow, the wings hyaline, with no fuscous marking.

Genus ***Paragyron neuron*** BAKER

*Paragyron neuron* BAKER, Philip. Journ. Sc., Vol. 12, p. 318 (1917).

\*23. ***Paragyron neuron flavum*** (ENDERLEIN)

*Gyron neuron flavum* ENDERLEIN, Arch. Naturgesch., 84 A, p. 144, ♀ (1920).

Habitat: Kosempo (1 ♀, 7/ix, 1912).

Gen. Distr.: Sumatra, Formosa.

Genus ***Rhogas*** NEES

*Rhogas* NEES, Nova Act. Acad. Nat. Cur., Vol. 9, p. 306 (1818).

Subgenus *Aleiodes* WESMAEL*Aleiodes* WESMAEL, Nouv. Mén. Acad. Sc. Belg., Vol. 11, p. 94 (1838).**\*24. *Rhogas (Aleiodes) lateralis* BAKER***Rhogas (Aleiodes) lateralis* BAKER, Philip. Journ. Sc., Vol. 12, p. 391, ♀ (1917).

Habitat: Koshun (1 ♀, viii, 1912).

Gen. Distr.: Philippines, Formosa.

Subgenus *Rhogas* s. str.**25. *Rhogas (Rhogas) cariniventris* ENDERLEIN***Rhogas cariniventris* ENDERLEIN, Ent. Mitt., I, p. 257, ♀ ♂ (1912).

Habitat: Hoozan (1 ♂, ii, 1912)—Taihorin (6 ♀ ♀, 1, ♂ i, 1910; 1 ♀, 2 ♂ ♂, v, 1910; 1 ♀, 2 ♂ ♂, 7/vii, 1911; 3 ♀ ♀, 7/xii, 1911; 2 ♀ ♀, 3 ♂ ♂, 7/ix, 1912).

Gen. Distr.: Formosa.

Genus *Chelanorhogas* ENDERLEIN*Chelanorhogas* ENDERLEIN, Ent. Mitt., I, p. 258 (1912).**26. *Chelanorhogas rufithorax* ENDERLEIN***Chelanorhogas rufithorax* ENDERLEIN, Ent. Mitt., I, p. 258, ♀ (1912).

Habitat: Taihoku (1 ♀, 7/vii, 1911).

Gen. Distr.: Formosa.

Subfamily *Cheloninae*Tribe *Sigalphini*Genus *Fornicia* BRULLÉ*Fornicia* BRULLÉ, Hist. Nat. Ins. Hymen., Vol. 4, p. 511 (1846).*Odontofornicia* ENDERLEIN, Ent. Mitt., I, p. 260 (1912).**27. *Fornicia arata* (ENDERLEIN)***Odontofornicia arata* ENDERLEIN, Ent. Mitt., I, p. 261, ♀ (1912); CUSHMAN, Philip. Journ. Sc., Vol. 40, p. 235, ♀ ♂ (1929).*Fornicia arata* WATANABE, Ins. Mats., VIII, p. 120, ♀ (1934).

Habitat: Takao (2 ♀ ♀, 1 ♂, 7/x, 1909)—Kosempo (1 ♂, 2/vii, 1911)—Koshun (1 ♂, 2/vii, 1911; 1 ♂, v, 1912; 1 ♀, vii, 1912).

Gen. Distr.: Formosa, China (Yeng Kong).

**\*28. *Fornicia ceylonica* WILKINSON***Fornicia ceylonica* WILKINSON, Bull. Ent. Res., XIX, p. 262, ♀ ♂, fig. 2 (1928).

In a series of the Formosan specimens, the scutellar tooth is normally undivided at the apex,

but sometimes slightly divided, and the proscutellar median process is very variable in sharp. The scale-like prominence at each side of the mesonotum is not a special appendage of this species, but it is also seen in *Formicia arata* (ENDERLEIN).

Habitat: Taihoku (1 ♂, 7/vii, 1912; 3 ♂ ♂, 7/viii, 1912; 1 ♂, 7/ix, 1912)—Hoozan (1 ♂, 7/ix, 1912)—Fusho (2 ♂ ♂, 7/ix, 1912).

Gen. Distr.: Ceylon, Formosa.

### Tribe *Chelonini*

#### Genus *Chelonus* JURINE

*Chelonus* JURINE, in Panzer, Krit. Revis., Vol. 2, p. 99 (1806); id., Nouv. Méth. Class. Hymen., p. 289 (1807).

*Trachionus* HALIDAY, Ent. Mag., Vol. I, p. 265 (1833).

#### 29. *Chelonus formosanus* SONAN

*Chelonus formosanus* SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 70, ♀ (1932); WATANABE, Ins. Mats., VIII, p. 120, ♀ (1934).

As a supplement to the original description the following characters may be added:

♀. Front slightly excavated, not laterally margined, with a horn between the antennae, which is bidentate at the apex; antennae 26 jointed (not 30 jointed as in the original description); nervulus distinctly postfurcal, oblique, but not curved; basal portion of the 2nd abscissa of the medial nervure as long as one third of the apical portion; ovipositor concealed.

♂. Closely resembles the female, but the antennae slenderer, 28 jointed.

Described from four female and one male in SAUTER's collection.

Habitat: Koshun (1 ♀, 1 ♂, 22/iv, 1912)—Kosempo (2 ♀ ♀, xi, 1908)—Pilam (1 ♀, vii, 1912).

Gen. Distr.: Formosa.

#### 30. *Chelonus tabonus* SONAN

*Chelonus tabonus* SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 71, ♀ ♂ (1932).

*Chelonella yami* SONAN, l. c., p. 74, ♀ (1932) (syn. nov.)

As a supplement to the original description the following characters may be added:

♂. Black; mandibles and palpi brownish red to brown; coxae at the extreme apices, trochanters, fore tibiae and four anterior tarsi yellowish red to brown; hind tibia sometimes with a yellowish ring at the base; hind tarsi yellowish white to brown, variable in colour; wings hyaline in the basal half, the remainder slightly infuscate; stigma and veins brown; abdomen with two white subbasal spots, varying in size, sometimes confluent.

Head transverse; face reticulate-rugose, silvery pubescent; clypeus closely punctate; malar space nearly half the length of the eye; frontal depression deep, with a longitudinal carina in the middle, laterally margined; vertex longitudinally striate; antennae slender, 26–27 jointed (not 32 jointed as in the original description). Thorax coarsely rugose; scutellum anteriorly with four foveae, separated by five carinae; propodeum strongly reticulate, the posterior face declivent, concave, separated from the upper face by a transverse carina. First abscissa of the radius a little shorter than the 2nd; 2nd cubital cell slightly narrowed towards the apex; 1st intercubitus oblique, a little shorter than the 2nd abscissa of the cubitus; 2nd intercubitus vertical, decoloured; nervulus shortly postfurcal. Abdomen as long as the head and thorax taken together, reticulate-rugose, with no apical fissure; ventral cavity far from the apex; genital organ normally concealed in the cavity.

Length 4.5–5 mm.

Described from SONAN's holotype which is truly a male and not a female, allotype, paratype (♂, Kosen 22/viii, 1923), and consulting with many male specimens in SAUTER's collection.

♀. Closely allied to the male in general structure and colour, but differs from the latter in the following points:

1) Antennae much shorter, compresso-dilated beyond the middle, 16 jointed, the last 5-6 joints rapidly decreasing its size.

2) Reticulation of the face closer than that of the male.

3) Subbasal white spots of the abdomen larger, generally confluent.

4) Ovipositor concealed in the ventral cavity, sometimes subexserted.

Length 5.5-6 mm.

Described from SONAN's paratype (♀, Taito 25/ii-27/iii, 1919) and from many female specimens in SAUTER's collection. After examining SONAN's type of *Chelonella yami*, the present writer is convinced that it may be a female of this species.

Habitat: Pilam (19 ♂♂, 7 ♀♀, vii, 1912)—Anping (3 ♂♂, 6 ♀♀, 8/viii, 1911)—Takao (4 ♂♂, 1 ♀, viii, 1907)—Taihorin (5 ♂♂, 3 ♀♀, 7/iv, 1911)—Koshun (13 ♂♂, 4 ♀♀, vii, 1912)—Tainan (2 ♀♀, iv, 1912)—Kosempo (1 ♀, 7/vii, 1911).

Gen. Distr.: Formosa.

### Genus *Chelonella* SZÉPLIGETI

*Chelonella* SZÉPLIGETI, Ann. Mus. Nat. Hung., VI, p. 403 (1908).

#### 31. *Chelonella rufosignata* SONAN

*Chelonella rufosignata* SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 77, ♀ (non ♂) (1932).

As a supplement to the original description the following points may be added:

♀. Antennae slightly compresso-dilated on the 7th to 12th joints; maxillary palpi short; 1st abscissa of the radius longer than the 2nd, the 3rd slightly curved inwardly; 1st intercubitus oblique, a little shorter than the 2nd abscissa of the cubitus, the 2nd decoloured, as long as the 2nd abscissa of the radius; nervulus postfurcal, oblique; basal portion of the 2nd abscissa of the medial nervure as long as one fourth of the apical portion; ventral cavity reaching the apex, with two teeth at the terminal lateral angles; ovipositor exserted.

Described from SONAN's unique type which is truly a female and not a male.

♂. Closely resembles the female, but differs from the latter in the following points:

1) Antennae yellowish brown, slenderer, 22 jointed.

2) Abdomen black, with a small white spot at each basal side.

3) Ventral cavity does not reach the apex, the apical fissure is large, oval, nearly twice as broad as long.

Length 5 mm.

Described from a male in SAUTER's collection.

Habitat: Koshun (1 ♂, v, 1912).

Gen. Distr.: Formosa.

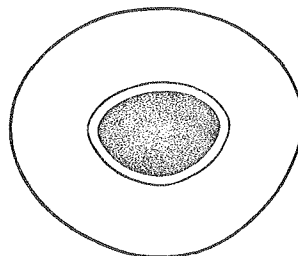


Fig. 5.

Apical fissure at the apex of the male abdomen of *Chelonella rufosignata* SONAN

Genus *Ascogaster* WESMAEL*Ascogaster* WESMAEL, Nouv. Mém. Acad. Sc. Belg., Vol. 9, p. 226 (1835).**32. *Ascogaster formosanus* SONAN***Ascogaster formosanus* SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 78, ♀ ♂ (1932).

In a series of the writer's specimens the antennae differ from the original description in both sexes.

♀. Antennae slightly compresso-dilated beyond the middle, 42-43 jointed (not 59 jointed).

♂. Antennae slenderer, not dilated, 46 jointed.

Habitat: Funkiko (4 ♀ ♀, 16/xi, 1929, J. SONAN)—Toen (1 ♀, 1 ♂, 19/vi, 1907, S. MATSUMURA)—Shinsharyo (2 ♂ ♂, x, 1911, H. SAUTER).

Gen. Distr.: Formosa.

Genus *Phanerotoma* WESMAEL*Phanerotoma* WESMAEL, Nouv. Mém. Acad. Sc. Belg., Vol. 11, p. 165 (1838).**33. *Phanerotoma flava* ASHMEAD***Phanerotoma flava* ASHMEAD, Proc. U. S. Nat. Mus., Vol. 30, p. 191, ♀ (1906).*Phanerotoma taiwana* SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 31, ♀ ♂ (1932) (syn. nov.).

Habitat: Koshun (1 ♂, vi, 1912).

Gen. Distr.: Japan, Formosa.

**34. *Phanerotoma flavida* ENDERLEIN***Phanerotoma flavida* ENDERLEIN, Ent. Mitt., I, p. 259, ♀ ♂ (1912); SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 80 ♀ ♂ (1932).

Habitat: Anping (1 ♀, vi, 1911; 1 ♀, v, 1912)—Tainan (2 ♀ ♀, 3 ♂ ♂, vi, 1912)—Koshun (2 ♂ ♂, ix, 1912).

Gen. Distr.: Formosa, Ceylon.

**35. *Phanerotoma bicolor* SONAN***Phanerotoma bicolor* SONAN, Trans. Nat. Hist. Soc. Formosa, XXII, p. 81, ♀ (?) (1932).

Habitat: Tainan (1 ♂, iv, 1912).

Gen. Distr., Formosa.

Subfamily *Microgasterinae*Genus *Microgaster* LATREILLE*Microgaster* LATREILLE, Hist. Nat. Crust. Ins., Vol. 3, p. 109 (1802).**\*36. *Microgaster kuchingensis* WILKINSON***Microgaster kuchingensis* WILKINSON, Bull. Ent. Res., XVIII, p. 176, ♀, fig. 3 (1927); id., Trans. Ent. Soc. London, p. 120, ♀ ♂ (1929).

In a series of Formosan specimens the punctuation of the mesonotum is not so strong as in the typical form, and the two basal tergites are also weakly striate-rugose.

Habitat: Koshun (1 ♀, 2 ♂ ♂, iv, 1912; 5 ♂ ♂, vii, 1912; 2 ♀ ♀, 2 ♂ ♂, ix, 1912).

Gen. Distr.: Borneo, India, Formosa.

Subfamily *Agathiinae*

Genus *Euagathis* SZÉPLIGETI

*Euagathis* SZÉPLIGETI, Term. Füz., XXIII, p. 62 (1900).

37. *Euagathis formosana* ENDERLEIN

*Euagathis formosana* ENDERLEIN, Arch. Naturgesch., 84 A, p. 178, ♀ (1920).

*Euagathis formosana* var. *obscurio* ENDERLEIN, l. c., p. 179, ♂ (1920).

♂. Hind legs with the coxae fuscous; abdomen reddish yellow, the 4th and the following tergites black.

Length 10-11 mm.

Habitat: Taihorin (3 ♀ ♀, 1 ♂, 7/vii, 1911)—Kosempo (1 ♀, x, 1911)—Koshun (1 ♀, vi, 1912; 2 ♀ ♀, 3 ♂ ♂, viii, 1912).

Gen. Distr.: Formosa.

Genus *Crempops* FÖRSTER

*Crempops* FÖRSTER, Verh. Nat. Ver. Preuss. Rheinl., Vol. 19, p. 246 (1862).

38. *Crempops alternans* ENDERLEIN

*Crempops alternans* ENDERLEIN, Arch. Naturgesch., 84 A, p. 185, ♀ ♂ (1920).

Habitat: Taihorin (6 ♂ ♂, 7/xii, 1911; 1 ♀, iv, 1912)—Paroz (1 ♀, 1 ♂, ix, 1912)—Pilam (2 ♂ ♂, 1912)—Kosempo (1 ♂, vii, 1912)—Koshun (3 ♂ ♂, 4 ♀ ♀, iv, 1912; 2 ♀ ♀, 7 ♂ ♂, v, 1912; ♀ ♀, 17 ♂ ♂, vi, 1912; 8 ♀ ♀, 35 ♂ ♂, vii, 1912; 11 ♀ ♀, 21 ♂ ♂, viii, 1912; 7 ♀ ♀, 54 ♂ ♂, ix, 1912).

Gen. Distr.: Formosa.

Genus *Microdus* NEES

*Microdus* NEES, Mag. Ges. Naturf, Fr. Berlin, Vol. 6, p. 184 (1812).

39. *Microdus cancellatus* ENDERLEIN

*Microdus cancellatus* ENDERLEIN, Arch. Naturgesch., 84 A, p. 201, ♂ (1920); WATANABE, Ins. Mats., VIII, p. 120, ♂ (1934).

As a supplement to the original description, some characters of the female may be added:

♀. Black; clypeus, mandibles except the apices, palpi reddish yellow; prothorax and mesonotum yellowish red; fore legs with the coxae, tibiae and tarsi of the middle legs reddish yellow; hind tibiae with each a white ring at the base; wings apically infuscate, basally subhyaline; stigma and veins dark brown; belly at the base tinged with brown; ovipositor brownish red, the sheath black.

Head smooth and shining, with pubescence; face and clypeus closely scattering punctures; frontal depression deep, with a stout plate between the antennae, which becomes gradually smaller behind, and is roundish in front; antennae more than 32-jointed (the apex broken off). Prothorax, mesonotum and scutellum finely punctate; parapsidal furrows deep, crenulate; mesopleurae smooth and shining, with a deep, crenulate furrow at the middle; metapleurae strongly punctate; propodeum coarsely reticulate-rugose, the spiracles small, oval. Second cubital cell triangular, petiolate above; nervulus just

postfurcal. First tergite dull,  $1\frac{1}{2}$  times longer than broad at the apex, longitudinally striate on the basal half; 2nd tergite dull, weakly transversely impressed at the basal third, the remaining tergites smooth and shining; ovipositor long, the sheath a little shorter than the thorax and abdomen taken together.

Body-length 8.5-9 mm., ovipositor-length 7 mm.

Habitat: Koshun (3 ♀ ♀, 2 ♂ ♂, ix, 1912).

Gen. Distr.: Formosa.

#### 40. *Microdus rudimentarius* ENDERLEIN

*Microdus rudimentarius* ENDERLEIN, Arch. Naturgesch., 84 A, p. 202, ♀ (1920).

♂. Closely resembles the female, but differs from the latter in the following points:

- 1) Antennae 29-jointed (in the present female specimens the antennae broken off).
- 2) Second cubital cell smaller than that of the female, sometimes absent.
- 3) Second tergite nearly smooth and shining.

Length 3.5-4 mm.

Habitat: Takao (1 ♂, viii, 1907)—Koshun (1 ♀, vii, 1912; 3 ♂ ♂, iv, v, vi, 1912)—Pilam (1 ♀, vii, 1912).

Gen. Distr.: Formosa.

#### 41. *Microdus sauteri* nov. sp.

♀. Black; mouth-parts, fore legs, the tibiae and tarsi of the middle legs reddish yellow; hind tibiae each with a white ring at the base; wings apically infuscate, basally hyaline; stigma and veins dark brown; ovipositor brownish red, the sheath black.

Head smooth and shining; face and clypeus finely punctate, with pubescence; frontal depression deep, with a plate between the antennae as in *cancel-latus*; posterior ocelli considerably nearer than the distance to the eyes; antennae 44 jointed. Thorax smooth and shining, scattering fine punctures; parapsidal furrows deep, crenulate; mesopleural furrow broad, strongly crenulate; metapleurae closely punctate; propodeum strongly reticulate-rugose. Second cubital cell triangular, sessile above; nervulus just postfurcal. Abdomen smooth and shining; 1st tergite a little longer than broad at the apex, with a short longitudinal carina at each side of the base, rugose between the carina and the lateral margin; 2nd tergite as long as the 3rd, weakly transversely impressed at the basal third; ovipositor as long as the propodeum and abdomen united.

Body-length 10 mm., ovipositor-length 7 mm.

♂. Closely allied to the female in general structure and colour, but differs from the latter in having the antennae slenderer, 46 jointed; 1st tergite slender, nearly twice as long as broad at the base, slightly striate on the basal half.

Length 9 mm.

Holotype: ♀, Koshun, ix, 1912.

Allotype: ♂, Koshun, ix, 1912.

Paratype: Koshun (1 ♀, v, 1912).

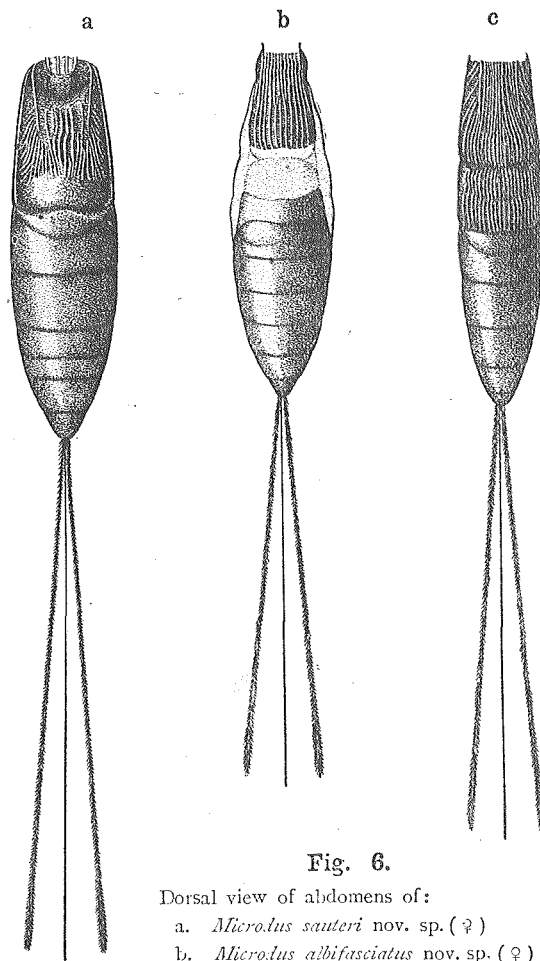
Habitat: Koshun (Formosa).

This species closely resembles *Microdus cancellatus* ENDERLEIN, but it is easily distinguished from the latter by the black thorax.

**42. *Microdus albifasciatus* nov. sp.**

♀. Head and thorax yellowish red; antennae dark brown; propodeum and metapleurae fuscous; four anterior legs reddish yellow; hind legs dark brown, the tibiae with each a white ring at the base; wings slightly infuscate, the stigma and the veins dark brown; abdomen black; 1st tergite at the lateral margins, 2nd tergite on the basal half, belly of the three basal segments yellowish white; ovipositor brownish red, the sheath black.

Head transverse; face and clypeus slightly punctate, with pubescence, the remainder of the head smooth and shining; malar space a little shorter than the length of each eye; frontal depression deep, with a plate between the antennae; antennae 33 jointed, the scapus stout, as long as the 1st joint of the flagellum. Thorax smooth and shining, pubescent; parapsidal furrows crenulate; mesopleural furrow crenulate, anteriorly obsolete; metapleurae closely punctate; propodeum strongly reticulate-rugose, the spiracles small, oval. Second cubital cell triangular, sessile above; nervulus interstitial. Hind coxae smooth, pubescent. First tergite gradually broadened towards the apex, nearly twice as long as broad at the apex, longitudinally striate;



**Fig. 6.**

Dorsal view of abdomens of:

- a. *Microdus sauteri* nov. sp. (♀)
- b. *Microdus albifasciatus* nov. sp. (♀)
- c. *Microdus formosanus* nov. sp. (♀)

2nd tergite the broadest, transversely impressed at the middle, the basal division raised, obsoletely rugose, the apical division longitudinally striate, but not so strong as in the 1st; 3rd and the following tergites smooth, shining; ovipositor longer than the abdomen.

Body-length 7 mm., ovipositor-length 5.5 mm.

♂. Closely resembles the female, but the antennae slenderer, 33-35 jointed.

Length 5.5-6 mm.

Holotype: ♀, Koshun, vii, 1912.

Allotype: ♂, Koshun, viii, 1912.

Paratypes: Koshun (4 ♂ ♂, viii, 1912).

Habitat: Koshun (Formosa).

This species resembles more *Hemigaster subrosa* ENDERLEIN (Arch. Naturgesch., 84, A, p. 200, ♂, 1920) in the structure of the two basal tergites than the preceding three Formosan species.

#### 43. *Microdus formosanus* nov. sp.

♀. Head and thorax yellowish red; antennae black; mesopleurae at the posterior half fuscous; propodeum and metapleurae dark brown to black; four anterior legs reddish yellow; hind legs dark brown, the tibiae with each a white ring at the base; wings slightly infuscate, the stigma and the veins dark brown; abdomen black, the belly of the basal three segments tinged with yellowish brown; ovipositor brownish red, the sheath black.

Head transverse; face and clypeus slightly punctate, with pubescence, the remainder of the head smooth and shining; malar space distinctly shorter than the length of each eye; frontal depression shallow, with a small plate between the antennae; antennae 40-42 jointed. Thorax smooth and shining, pubescent; parapsidal furrows shallowly marked, slightly crenulate; metapleurae closely punctate; propodeum reticulate-rugose, with an irregularly margined median area, the spiracles oval, larger than those of *albifasciatus*. Second cubital cell triangular, sessile above; nervulus shortly postfurcal. Hind coxae smooth, pubescent. Abdomen slender, the two basal tergites longitudinally striate, the remainder smooth and shining; 1st tergite gradually broadened towards the apex, twice as long as broad at the apex, the 2nd transversely impressed at the middle; ovipositor as long as the thorax and abdomen taken together.

Body-length 7 mm., ovipositor-length 6 mm.

♂. Closely resembles the female, but the mesopleurae entirely yellowish red (in the present specimen the apices of the antennae broken off).

Length 6 mm.

Holotype: ♀, Koshun, vi, 1912.

Allotype: ♂, Koshun, vi, 1912.

Habitat: Koshun (Formosa).

Genus *Stantonia* ASHMEAD

*Stantonia* ASHMEAD, Proc. U. S. Nat. Mus., XXVIII, p. 146 (1904).

44. *Stantonia sauteri* WATANABE

*Stantonia sauteri* WATANABE, Ins. Mats., VI, p. 183, ♀ ♂ fig. 3, b (1932).

Habitat: Koshun (1 ♀, viii, 1912).

Gen. Distr.: Formosa.

Subfamily *Cenocoeliinae*

Genus *Cenocoelius* WESTWOOD

*Cenocoelius* WESTWOOD, Intr. Mod. Class. Ins., II, Syn. p. 62 (1840).

*Aulacodes* CRESSON, Proc. Ent. Soc. Philad., Vol. 4, p. 8 (1865).

*Capitoni* BRULLÉ, Hist. Nat. Ins. Hymen., Vol. 4, p. 544 (1846).

*Laccophrys* FÖRSTER, Verh. Nat. Ver. Preuss. Rheinl., Vol. 19, p. 257 (1862).

*Promachus* ASHMEAD, Proc. U. S. Nat. Mus., p. 653 (1888).

\*45. *Cenocoelius eous* WILKINSON

*Cenocoelius eous* WILKINSON, Stylops, Vol. 1, p. 86, ♀ ♂ (1932).

In a series of the Formosan specimens the recurrent nervure interstitial or just received in the 1st cubital cell.

Habitat: Fuhosho (15 ♀ ♀, v, 1909).

Gen. Distr.: India, Formosa.

46. *Cenocoelius koshunensis* nov. sp.

♀. Black; antennae dark brown, the two basal joints yellowish; all femora at the apices, four anterior tibiae, the hind tibiae at each base, all tarsi reddish yellow, the remaining legs fuscous; belly at the base, lateral margins of the two basal tergites reddish yellow; wings subhyaline; stigma and veins brown; ovipositor brownish red, the sheath black, with a narrow white ring at the apex.

Head broader than the thorax, closely punctate, with pubescence; face with a median longitudinal carina, the facial depressions considerably nearer to each other than to the eyes; frontal depression extends from the base of each antenna to the ocelli, with a short ridge in the middle, not margined laterally; posterior ocelli apparently nearer to each other than to the eyes; antennae 28 jointed, the scapus a little longer than the 1st joint of the flagellum. Thorax punctate, pubescent as in the head; mesonotum short, with a median longitudinal carina posteriorly; parapsidal furrows deep, crenulate; propodeum coarsely reticulate-rugose. First abscissa of the radius as long as a half of the 2nd; 2nd cubital cell narrowed towards the apex; recurrent nervure inserted in the apical fifth

of the 1st cubital cell; nervulus slightly postfurcal. Hind tibiae slightly thickened in the apical three fourths. Abdomen smooth and shining; 1st tergite nearly twice as long as broad at the apex, with two weak longitudinal carinae, the following tergites transverse; 2nd suture straight; ovipositor as long as the thorax and abdomen united.

Body-length 7 mm., ovipositor-length 5.5 mm.

♂. Closely resembles the female in general structure and colour, but differs from the latter in the following points:

1) All legs reddish yellow, the coxae often coloured in varying degrees with brown to black.

2) Antennae slenderer, 28-30 jointed.

3) Abdomen slenderer, the 4th and the following segments dilated, slightly curved downwards.

Length 5-6 mm.

Holytype: ♀, Koshun, iv, 1912.

Allotype: ♂, Koshun, vii, 1912.

Paratypes: Koshun (4 ♂ ♂, i, 1912; 2 ♂ ♂, iv, 1912; 13 ♂ ♂, vii, 1912; 4 ♂ ♂, viii, 1912).

This species differs from the preceding species in having the scapus shorter; the ovipositor longer, the sheath with a narrow white ring at the apex; wings slightly infusate.

#### Subfamily *Helconinae*

#### Tribe *Cardiochilini*

#### Genus *Cardiochiles* NEES

*Cardiochiles* NEES, Nova Acta. Acad. Nat. Cur., Vol. 9, p. 307 (1818).

*Dithereus* CAMERON, Journ. Bomb. Nat. Hist. Soc., Vol. 14, p. 434 (1902).

#### 47. *Cardiochiles albopilosus* SZÉPLIGETI

*Cardiochiles albopilosus* SZÉPLIGETI, Term. Füz. XXV, p. 77, ♂ (1902); ENDERLEIN, Stett. Ent. Zeit., p. 248, ♀ ♂ (1906); id., Ent. Mitt., I, p. 262, ♀ (1912)

Habitat: Kosempo (1 ♀, 7/vii, 1911).

Gen. Distr.: Singapore, Sumatra, Formosa.

#### 48. *Cardiochiles laevifossa* ENDERLEIN

*Cardiochiles laevifossa* ENDERLEIN, Stett. Ent. Zeit., p. 248, ♂ (1906); id., Ent. Mitt., I, p. 262, ♀ (1912).

Habitat: Takao (1 ♀, ix, 1907; 3 ♂ ♂, x, 1907)—Koshun (1 ♀, vii, 1911; 2 ♂ ♂, v, 1912)—Akan (1 ♀, ix, 1907)—Kagi (3 ♂ ♂, vii, 1907)—Taihorin (1 ♂, v, 1912).

Gen. Distr.: West-Java, Formosa.

**49. *Cardiochiles szépligetii* ENDERLEIN**

*Cardiochiles testaceus* SZÉPLIGETI, Term. Füz., XXV, p. 77, ♂ (1902) (nec KRIECHBAUMER, 1894).

*Cardiochiles szépligetii* ENDERLEIN, Stett. Ent. Zeit., p. 252 (1906); SZÉPLIGETI, Notes Leyden Mus., Vol. 29, p. 230, ♀ (1908); ENDERLEIN, Ent. Mitt., I, p. 262, ♀ (1912).

♀. Nely similar in general structure and colour to the male, but the ovipositor elongate, curved downwards, the sheath flattened, black, as long as the two basal joints of the hind tarsi united; hypopygium acute apically.

Body-length 5 mm., ovipositor-length 1 mm.

Habitat: Koshun (4 ♀ ♀, 4 ♂ ♂, vii, 1912; 6 ♀ ♀, 2 ♂ ♂, viii, 1912).

Gen. Distr.: Singapore, Malacca, Ceylon, Java, Formosa.

Tribe ***Macrocentrini***Genus ***Macrocentrus*** CURTIS

*Macrocentrus* CURTIS, Ent. Mag., p. 187 (1833).

*Amicroplus* FÖRSTER, Verh. Nat. Ver. Preuss. Rheinl., XIX, p. 256 (1862).

**50. *Macrocentrus japonicus* WATANABE**

*Macrocentrus japonicus* WATANABE, Ins. Mats., VI, p. 133, ♀ ♂ (1932); id., Kontyû, Vol. 7, p. 247, ♀ ♂ (1933).

Habitat: Taihoku (1 ♀, 7/vii, 1911).

Gen. Distr.: Japan, Formosa.

Tribe ***Opiini***Genus ***Opius*** WESMAEL

*Opius* WESMAEL, Nouv. Mém. Acad. Sc. Belg., Vol. 9, p. 115 (1835).

**51. *Opius maculipennis* ENDERLEIN**

*Opius maculipennis* ENDERLEIN, Ent. Mitt., I, p. 262, ♂ (1912); SONAN, Trans. Nat. Hist. Formosa, XXII, p. 67, ♀ ♂ (1932).

Habitat: Taihorin (3 ♀ ♀, v, 1910).

Gen. Distr.: Formosa.