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ORTHOPTERA OF THE JAPANESE EMPIRE  
PART I.  
(*GRYLLOTALPIDÆ* AND *GRYLLIDÆ*)

By

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(With 24 Text Figures)

Fam. *GRYLLOTALPIDÆ*

Key to the Japanese Subfamilies

1. Ocelli 2; anterior tibiae strongly dilated; elytra membranaceous, in the male with tympanal field  
... .. Subfam. *Gryllotalpinæ*
2. Ocelli 3; anterior tibiae moderately dilated; elytra corneous, in the male with no tympanal field  
... .. Subfam. *Tridactylinae*

Subfam. *GRYLLOTALPINÆ*

Genus *Gryllotalpa* LATREILLE

Gen. Crust. et Ins., III, p. 275 (1807).  
*Curtilla* OKEN, Lehrb. Nat., III, p. 445 (1815).  
*Gryllus* LINNÆUS; *Acheta* FABRICIUS.

Key to the Japanese Species

1. Anterior femora nearly straight on the externo-inferior margin; posterior tibiae with 4 long spines on the supero-internal margin.
  2. Wings exceeding the abdominal end; teeth of anterior tibiae usually short; 2 prosternal tubercles placed together. Medium-sized species... .. *africana* PAL. de B.
  - 2<sup>2</sup>. Wings very short, not reaching to the abdominal end but a little exceeding the tegmina; teeth of anterior tibiae usually long; 2 prosternal tubercles placed apart from each other. Small species ... .. *formosana* sp. nov.
- 1<sup>1</sup>. Anterior femora strongly S-like curved on the externo-inferior margin; posterior tibiae with only one or no spine on the supero-internal margin; teeth of anterior tibiae moderately long, not pointed; wings exceeding the abdominal end. Large species ... .. *manschurei* sp. nov.

1. *Gryllotalpa africana* PALISOT de BEAUVOIS (Fig. 1, C)

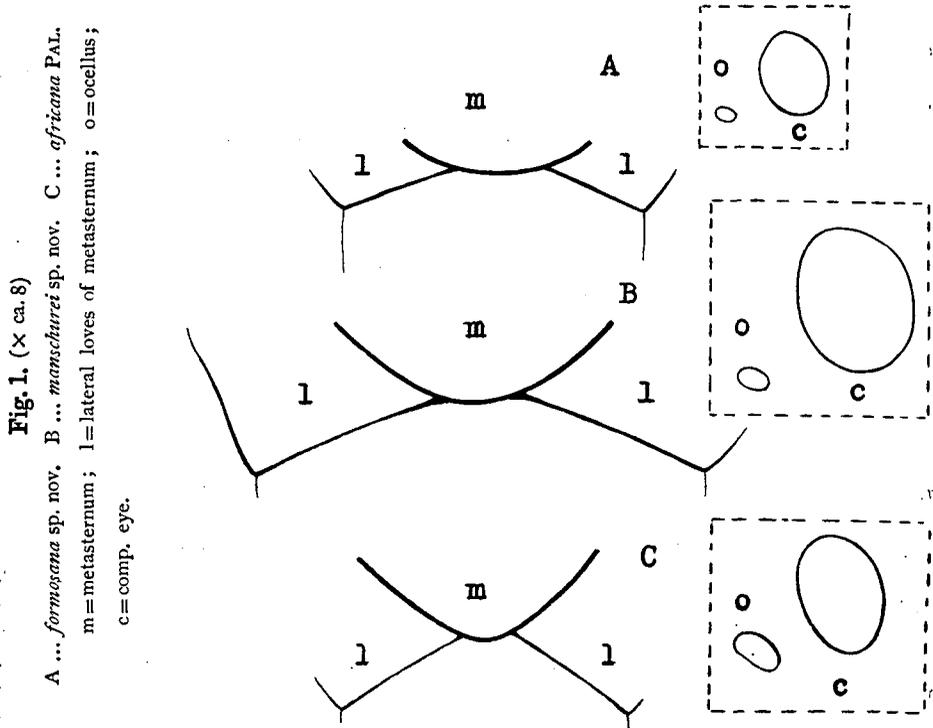
Ins. d'Africa et d'America, p. 229, pl. 2c, fig. 6 (1805).  
*Gryllotalpa orientalis* BURMEISTER, Handb. Ent., II, p. 739 (1839).  
*Gryllotalpa ornata* WALKER, Cat. B. M. Derm. Salt., I, p. 5 (1865).  
*Gryllotalpa fossor* SCUDDER, Peab. Acad. Sc., I, p. 21, pl. I, figs. 11, 28, 29 (1869).  
*Gryllotalpa oryctes* SCUDDER, Peab. Acad. Sc., I, p. 22, pl. I, figs. 12, 30, 31 (1869).

Hab.: Japan—Hokkaido, Honshu, Shikoku, Kiushu; Okinawa; Formosa; India; Africa; Australia; New Zealand; Asia.

2. *Gryllotalpa formosana* sp. nov. (Fig. 1, A)

This species is easily recognizable by the small-size, with very short wings and very small round ocelli.

♂, ♀. Head comparatively long; compound eyes rather less globular; ocelli small, round and less convex. Pronotum rather long, sometimes rather broad, the anterior margin strongly curved inwards, the median depressions



rather short but conspicuously divergent forwards; prosternal tubercles usually apart from each others; posterior margin of metasternum broadly rounded (rather angulated in *africana*), the lateral lobes being conspicuously separated. Abdomen rather short, not very much longer than head and thorax together; two last tergites not furnished with brush-like tufts (conspicuously furnished in *africana*). Front femora almost always nearly straight on the externo-inferior margin, very rarely somewhat S-like curved; front tibiae with comparatively long spines which are pointed or rounded apically; two apical spines of front tarsi

conspicuous; hind tibiae with 4 strong spines on the supero-internal margin. Wings very short, reaching a little beyond the tegmina, but in the male usually not exceeding the tegmina, which are also very short and have the large tympanal field.

Length: 16-25 mm.

Hab.: Formosa—Taihoku (IV), Shinka (VI).

This is rather common species, injurious to the sugar-cane.

The types belong to the collection of the Entomological Museum of Government Research Institute, Taihoku, Formosa.

### 3. *Gryllotalpa manchurei* sp. nov. (Fig. 1, B)

This species is easily distinguished by the large-size, comparatively small oval ocelli, shape of the externo-inferior margin of front femora and no spined supero-internal margin of hind tibiae.

♀. Head rather small; compound eyes moderately globular; ocelli very small, not round but oval. Pronotum elliptical, broadest at the middle; anterior margin rather strongly curved inwards; median depressions rather inconspicuous; prosternal tubercles moderate in size, rather divergent; posterior margin of metasternum narrowly rounded between the lateral lobes. Abdomen long and robust; brush-like tufts on the last abdominal tergites conspicuous.

Front femora very broad, the exteno-inferior margin strongly S-like curved; teeth of front tibiae very short, rounded at tip; tooth of front trochanters comparatively long; hind tibiae without tooth on the supero-internal margin, but in one of the types with only one.

Wings very long, as in *africana*; tegmina comparatively short.

Length: 40-50 mm.

Hab.: Manchurei—Riojun.

Two types (♀ ♀) preserved in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

Subfam. *TRIDACTYLINÆ*

Genus *Tridactylus* OLIVIER

Enc. Méth. Ins., IV, p. 26 (1789).

*Heteropus* PALISOT DE BEAUVOIS, Ins. d'Africa et d'America, p. 231 (1805).

*Xya* BURMEISTER, Handb. Ent., II, p. 741 (1838).

#### Key to the Japanese Species

1. Subgenital plate rounded on the posterior margin; anal appendages slender.

2. Lamellae of hind tibiae long and rather broad ... .. *japonicus* DE HAAN  
 2<sup>2</sup>. Lamellae of hind tibiae short and narrow ... .. *nitobae* SHIRAKI  
 1<sup>1</sup>. Subgenital plate roundly emarginate on the posterior margin; lower pair of anal appendages flattened, somewhat triangular; lamellae of hind tibiae comparatively short and narrow ... ..  
 ... .. *formosanus* sp. nov.

#### 4. *Tridactylus japonicus* DE HAAN

Temminck, Verhandl. Orth., p. 238 (*Xya*) (1842).

*Xya obscura*, MOTSCHULSKY, Bull. Mosc., XXXIX, p. 182 (1866).

*Tridactylus flavomaculatus* MATSUMURA, Schädli. u. Nützl. Ins. Zuckerr. Formosas, p. 9, pl. V, fig. 1 (1910).

Hab.: Japan—Honshu (IV), Shikoku, Kiushu; Formosa—Taihoku (V, X), Koshun (IV), Tauran (IV), Taito (II), Kankau (V–VIII), Anpin (VI), Tainan (V).

The species is injurious to the rice plant, wheat and other gramineous-plants in Japan and Formosa.

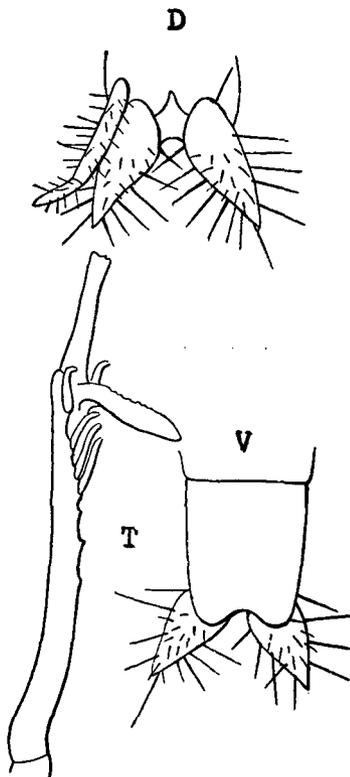


Fig. 2. (× ca. 14)

D ..... dorsal view of anal end;  
 V ..... ventral view of anal end;  
 T ..... posterior tibia.

#### 5. *Tridactylus nitobei* SHIRAKI

Monogr. Gryll. Formosa, p. 15, pl. I, fig. 1 (1911).

Hab.: Formosa—Taito (II–III), Rikiriki (III), Kanshirei (V), Kotosho (IV).

The type preserved in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

#### 6. *Tridactylus formosanus* sp. nov. (Fig. 2)

♂. Large, shining black. Head somewhat chestnut brown; vertex comparatively broad, compound eyes being rather small; clypeus pale yellow on about the lower half; labrum dark brown, rounded. Antennae and palpi pale yellow. Prothorax broad, a little longer than half the width, the anterior and lateral margins hardly concave, the posterior angle not sharply pointed. Tegmina black, becoming paler hindwards, rather long, about  $2\frac{1}{2}$  times as long as wide; costal area pale brown; middle vein straight (in *japonicus* distinctly curved). Wings long, hardly reaching to the end of abdomen. Front legs dirty yellow, middle legs black, coxae, trochanters, both the ends of femora, two

spots of tibiae and tarsi yellowish, hind legs black, excepting the tibiae and tarsi which are dirty yellow, on the hind femora there are two yellowish spots, one of which is at the base and the remaining on the apex which is large. Tibiae comparatively long, the middle one being very slightly shorter than the femora, and the hind one as long as the femora; lamellae of hind tibiae moderate in length, slender. Abdomen long, blackish brown; subgenital plate about twice as long as wide, the posterior margin conspicuously emarginated; cerci dark brown, the apical joint being yellowish, longer than the anal appendages which are very flattened and gradually narrowed apically.

Length: 7 mm.

Hab.: Formosa—Kurarū (V).

The unique type belongs to the Entomological Museum of Government Research Institute, Taihoku, Formosa.

#### Fam. *GRYLLIDÆ*

##### Key to the Japanese Subfamilies

1. Second tarsal joint depressed, cordate.
  2. Hind tibiae serrate on the dorsal side, with two rows of spines; inner apical spurs 3; ovipositor straight or very slightly curved; tympanal mirror divided by one or two veins.
  3. Apical spurs of hind tibiae elongate, of which the intermediate one on both sides is long, much longer than the superior one, often the supero-internal spur longer than the intermediate one; metatarsus elongate; frontal rostrum broad but not prolonged forwards.
  4. Pronotum nearly parallel-sided, the anterior angle of lateral lobes often angulated. Head broad, transverse, broader than pronotum. Elytra of male narrow, 2 oblique veins parallel ... .. Subfam. *Eneoptertinae*
  - 4<sup>1</sup>. Pronotum distinctly narrowed forwards, the lateral lobes never angulate at the anterior corner. Head very small, slenderer than posterior width of pronotum. Elytra of male very broad, oblique veins numerous and divergent... .. Subfam. *Itarinae*
  3. External apical spurs of hind tibiae minute, subequal; internal spurs long, the superior one being the longest, the interior the shortest; metatarsi rather short; frontal rostrum narrow and long ... .. Subfam. *Podoscyrtinae*
- 2<sup>2</sup>. Hind tibiae not serrate, with two rows of spines, internal apical spurs two; ovipositor short, distinctly curved upwards; tympanal mirror not divided ... .. Subfam. *Trigonidiinae*
- 1<sup>1</sup>. Second tarsal joint compressed, minute.
  2. Hind tibiae narrow, with two rows of spines. If dilated it is *Myrmicophilinae*.
  3. Hind tibiae serrate between the spines.
  4. Elytra of male presenting speculum; internal apical spurs 2 or 3; head globular, vertical ... .. Subfam. *Pentacentrinae*
  - 4<sup>1</sup>. Elytra of male with no speculum; internal apical spurs 3.
  5. Head short and vertical ... .. Subfam. *Phalangopsiinae*
  - 5<sup>5</sup>. Head long and horizontal ... .. Subfam. *Oecanthinae*
- 3<sup>3</sup>. Hind tibiae not serrate between the spines.
  4. Hind tibiae sometimes more or less serrate at the base, and spined at the apical portion; elytra abbreviate or absent; wings wanting ... .. Subfam. *Gryllomorphae*

- 4<sup>4</sup>. Hind tibiae entirely not serrate, but armed with spines; elytra complete; wings almost always complete.
5. Hind metatarsi sulcate and with two rows of serrations on the dorsal side; spines of hind tibiae not conspicuously movable.
6. Ocelli placed in a triangle. Hind femora as long as or shorter than tibia and metatarsus together; superior spur of hind tibiae shorter than or as long as the intermediate one ...  
 . . . . . Subfam. *Gryllinae*
- 6<sup>6</sup>. Ocelli placed in a rather straight line. Hind femora much longer than tibiae, or as long as tibia and tarsus together; superior spur of hind tibiae almost always longer than intermediate one ...  
 . . . . . Subfam. *Brachytrupinae*
- 5<sup>5</sup>. Hind metatarsi not serrate or with only one serration; spines of hind tibiae very long, completely movable ...  
 . . . . . Subfam. *Nemobiinae*
- 2<sup>2</sup>. Hind tibiae not spined, but serrate on the dorsal side. If spined it is dilated.
3. Body subelongate. Antennae slender, gradually tapering to tip; eyes distinct. Hind femora clavate; hind tibiae slender; apical spurs of hind tibiae 6.
4. Body subpubescent ...  
 . . . . . Subfam. *Sclevopterinae*
- 4<sup>4</sup>. Body squamose...  
 . . . . . Subfam. *Mogoplistinae*
- 3<sup>3</sup>. Body subspherical. Antennae thick, subfiliform. Hind femora ovate; hind tibiae dilate; apical spurs of hind tibiae 3-4 ...  
 . . . . . Subfam. *Myrmecophiliinae*

Subfam. *MYRMECOPHILINÆ*

Genus *Myrmecophila* LATREILLE

Regne Anim. (ed. 2) V, p. 183 (1829).

*Sphoerium* DE CHARPENTIER, Hor. Ent., pp. 78, 79 (1825).

*Myrmecophilus* SAUSSURE, Mem. Soc. Geneve, XXV, p. 289 (1877).

Key to the Japanese Species

1. Supra-anal plate of male subtriangular ...  
 . . . . . *sapporensis* MATSUMURA
2. Supra-anal plate of male subtriangular but distinctly splitted at the tip ...  
 . . . . . *formosana* sp. nov.

1. *Myrmecophila sapporensis* MATSUMURA

Thous Ins. Japan, I, p. 138, pl. IV, fig. 15 (1904).

Hab.: Japan—Sapporo, Osaka.

2. *Myrmecophila formosana* sp. nov.

*Myrmecophila sapporensis* KARNY (nec MATS.), Suppl. Ent., IV, p. 71 (1915).

Brown; palpi, legs and cerci pale yellow; basal part of antennae pale brown. Frons conspicuously narrowed forwards and distinctly rounded at the tip, where it is about twice as wide as the basal joint of antennae when seen from above. Face distinctly convex,  $1\frac{1}{2}$  as wide as the basal joint of antennae between the antennal foveae; clypeus more than twice as wide as long, very slightly concave at the lower margin; upper lip yellowish brown, about as long as clypeus; maxillary palpi big, the apical joint somewhat triangular, conspicu-

ously broadened apically, the tip obliquely truncate, about twice as long as the preceding one and about  $2\frac{1}{2}$  as long as wide. Pronotum with more or less distinct lateral carinae, about  $1\frac{1}{2}$  as long as wide, the anterior and posterior margins very slightly curved hindwards; lateral lobes very narrow, about 4 times as long as wide, the lower margin moderately rounded, the posterior  $\frac{1}{3}$  rather strongly deflexed. Mesonotum very narrow, about  $\frac{1}{5}$  as long as pronotum, very slightly broadened behind, the posterior margin very slightly curved behind; metanotum about  $2\frac{1}{2}$  times as long as mesonotum, broadened behind, the posterior margin slightly concave. Abdomen about as long as pronotum, distinctly broader than long; first segment as long as metanotum, the second about  $\frac{1}{3}$  as long as the first; the following segments very short, linear transversely; supra-anal plate transverse, the posterior margin truncate and very inconspicuously curved forwards; genitalia triangularly prolonged behind in the middle; subgenital plate longer than the first abdominal tergite, when seen from side a little longer than wide, strongly narrowed apically and rather pointed, but the base a little narrowed, when seen from beneath nearly triangular, rather pointed but the tip very shortly splitted; cerci shorter than hind femora, but a little exceeding the femora, 13-jointed, pubescent and sparsely bristled, the apical joint with a fine spine. Hind tibiae about  $\frac{4}{5}$  as long as femora; spines of internal margin 4, of which the third (from the base) much shorter than the others; external spines only two, longer than internal ones, the apical one longer than the first; front tibiae with a pair of short apical spines, on the externo-inferior margin there are two short spines at the middle thirds; front femora with a very short spine near the tip of interno-inferior margin.

Length: 2.5 mm.

Hab.: Formosa—Anpin (V), Takao (XI).

The type belongs to the Entomological Institute of Dahlem-Berlin, which was identified by KARNY as *sapporensis* MATS.

#### Subfam. MOGOPLISTINÆ

#### Key to the Japanese Genera

1. Front tibiae perforated with a distinct internal tympanum; elytra of male with a large tympanal field; pronotum of male almost always conspicuously prolonged behind ... .. *Liphoplus* SAUSSURE
2. Front tibiae not perforated with tympanum; elytra not developed; pronotum of male slightly convex behind ... .. *Arachnocephalus* COSTA

#### Genus *Arachnocephalus* COSTA

Fauna Regn. Nap. Ortott., p. 42 (1855).

*Physoblemma* BRUNNER VON WATTENWYLL, Soc. Ent. Suiss., IV, p. 169 (1873).

**3. *Arachnocephalus brevissimus* SHIRAKI**

Monogr. Gryll. Formosa, p. 19, pl. 1, fig. 2 (1908).

Hab.: Formosa—Kusukusu (IV), Koshun (IV-V), Arisan (X), Namakaban (IX).

Genus *Liphoplus* SAUSSURE

Mém. Soc. Geneve, XXV, p. 315 (1877).

## Key to the Japanese Species

**Male**

1. Pronotum much longer than wide.
2. Pronotum rather small; elytra exceeding pronotum.
3. Elytra yellowish to pale castaneous.
  4. Posterior margin of pronotum slightly rounded and moderately broadened.
  5. Legs dark brown to blackish; pronotum castaneous; elytra long-exposed behind the pronotum, nearly unicolour, pale castaneous ... .. *fuscicerci* sp. nov.
  - 5<sup>5</sup>. Legs and pronotum yellowish to pale brownish.
    6. Elytra long-exposed, pale yellowish brown with brown margin; anal processes vertically erected ... .. *kanetataki* MATSUMURA.
    - 6<sup>6</sup>. Elytra very little exposed, light yellow, with two black apical spots; anal processes oblique... .. *bimaculatus* sp. nov.
  - 4<sup>4</sup>. Posterior margin of pronotum strongly rounded and broadened; legs and pronotum pale reddish yellow; elytra conspicuously exposed behind the pronotum, pale yellowish brown, with castaneous apical margin; anal processes very small, nearly horizontal ... .. *formosanus* SHIRAKI
- 3<sup>3</sup>. Elytra sepia to black, long-exposed; pronotum reddish brown or reddish yellow, moderately elongate and broadened behind; legs yellowish; anal processes vertically erected ... .. *infuscatus* sp. nov.
- 2<sup>2</sup>. Pronotum very large; elytra not exposed; legs and pronotum reddish brown; anal processes very small, nearly vertical ... .. *annulipedus* SHIRAKI
- 1<sup>1</sup>. Pronotum slightly longer than wide, moderately expanded and conspicuously rounded behind, yellowish; elytra pale yellowish, moderately exposed behind the pronotum; legs pale yellowish; anal processes very long, vertically erected ... .. *longipennis* sp. nov.

**Female**

1. Ovipositor shorter than body.
2. Ovipositor curved upwards.
  3. Pronotum longer than wide; supra-anal plate pointed behind; ovipositor as long as hind tibiae ... .. *formosanus* SHIRAKI
  - 3<sup>3</sup>. Pronotum as long as wide; supra-anal plate rounded at the tip, at the basal corner with a distinct tubular elevation which is furnished with a few very long bristly hairs; ovipositor distinctly shorter than hind tibiae ... .. *annulipedus* SHIRAKI
- 2<sup>2</sup>. Ovipositor straight or inconspicuously curved beneath.
  3. Supra-anal plate rather long; subgenital plate shortly emarginate.
  4. Subgenital plate triangularly emarginate; ovipositor as long as hind tibiae ... .. *infuscatus* sp. nov.
  - 4<sup>4</sup>. Subgenital plate roundly emarginate; ovipositor longer than hind tibiae ... .. *kanetataki* MATSUMURA
  - 3<sup>3</sup>. Supra-anal plate very short and broad, very slightly convex behind; subgenital plate deeply

- emarginate; ovipositor longer than hind tibiae... .. *bimaculatus* sp. nov.  
 1<sup>1</sup>. Ovipositor nearly as long as body, very slightly curved upwards; supra-anal plate triangular; subgenital plate subtriangular, not sinuate behind; pronotum a little longer than wide ... ..  
 ... .. *longipennis* sp. nov.

#### 4. *Liphoplus longipennis* sp. nov. (Fig. 3)

♂. Median sized, pale yellowish species. Head pale reddish yellow, somewhat shining, narrower than pronotum, slightly convex above, with two distinct foveolae; frontal rostrum a little narrower than 1st antennal joint, with a rather inconspicuous longitudinal suture above only; face short, pale yellow, shining, mouth-part a little darker. Palpi yellowish; 5th joint of the maxillary ones as long as the 3rd and somewhat triangular, 4th a little shorter. Antennae yellowish.

Pronotum pale reddish yellow, slightly narrowed in front, with posterior margin moderately convex.

Abdomen longer than head and thorax together; supra-anal plate moderate in size, triangular, dirty yellow; subgenital plate moderate in size, black, shining; anal processes brown, very long, cylindrical, pointed at apex, vertically erected.

Legs rather long, pale yellowish. Anterior tibiae perforated with a median-sized internal oval tympanum; anterior and intermediate metatarsi rather thick, about  $1\frac{1}{2}$  times as long as wide or as long as the 3rd joint. Posterior femora exceeding the abdominal end, moderately swollen; tibiae about  $\frac{2}{3}$  as long as the femora, external spurs very short,

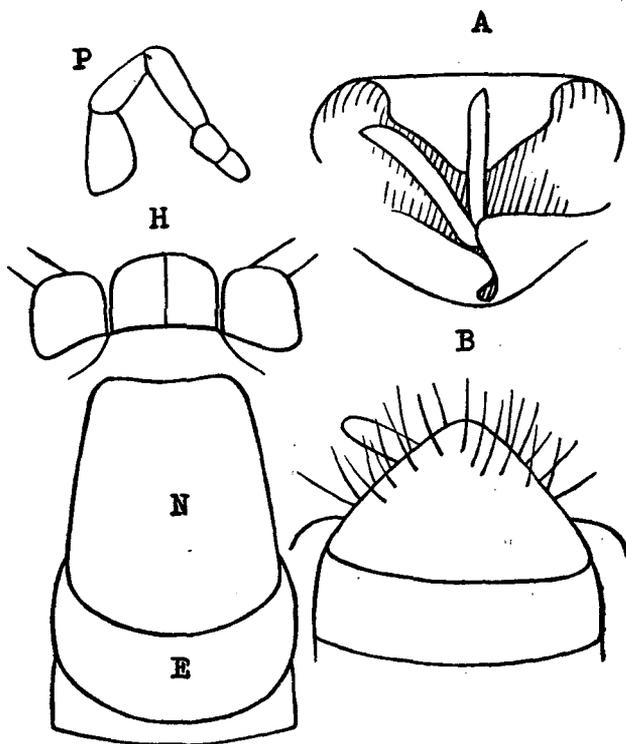


Fig. 3.

*Liphoplus longipennis* sp. nov.

- A ..... anal apex seen from behind.  $\times$  ca. 20.  
 B ..... anal end seen from ventre.  $\times$  ca. 20.  
 P ..... maxillary palpus seen from external side.  $\times$  ca. 20.  
 H ..... apex of head seen from dorsum.  $\times$  ca. 20.  
 N ..... pronotum.  $\times$  ca. 8; E ..... elytra.  $\times$  ca. 8.

interno-intermediate one rather long, supero-internal conspicuously shorter than the inferior one, the later being longer than externo-intermediate one; posterior metatarsi with two rows of 8 very inconspicuous spines.

Elytra extending beyond the pronotum, pale yellowish.

♀. Rufous. Frontal rostrum as wide as the 1st joint of antennae; foveolae of head inconspicuous; 5th joint of maxillary palpi comparatively slender; pronotum a little longer than wide, slightly broadened behind, the posterior margin straight; subgenital plate yellowish, shining; supra-anal plate very small; ovipositor very long, very slightly curved upwards, longer than the body, apical valves rather slender and smooth.

Length: Body ♂ 9 mm, ♀ 10.1 mm; pronotum ♂ 2.5 mm, ♀ 3 mm; posterior femora ♂ 5.1 mm; ovipositor 9.5 mm.

Hab.: Ogasawarajima (Bonin Isles) (VIII), 1 ♂ and 2 ♀ ♀.

The species is easily distinguished from the followings by long anal process and ovipositor, as well as short pronotum.

Types belong to Entomological Museum of Government Research Institute, Taihoku, Formosa.

##### 5. *Liphoplus annulipedus* SHIRAKI

Monogr. Gryll. Formosa, p. 22, pl. I, fig. 3 (1908).

♀. Prothorax as long as wide, the anterior and posterior margins inconspicuously convex; supra-anal plate triangular, with the apex very slightly sinuate; ovipositor short, very slightly curved upwards, apical valves narrow, short and smooth.

Length: Body ♀ 10.5 mm; pronotum ♀ 2.7 mm; ovipositor 4.1 mm.

Hab.: Formosa—Koshun (IV, V), Taihoku (IX), Kotosho (V).

##### 6. *Liphoplus infuscatus* sp. nov. (Fig. 4)

♂. Rather small, fuscous. Head comparatively large, broader than the frontal width of pronotum, pale brown, covered with greyish scales, flattened above; frontal rostrum very slightly broader than the 1st antennal joint, conspicuously furrowed throughout, rufous, shining; face moderate in length, rufous, shining, with mouth part somewhat darker. Palpi yellowish; three apical joints of maxillary palpi nearly the same in length, the 5th being very thick and triangular. Antennae yellowish.

Pronotum rufous, a little longer than wide, gradually broadened behind, the posterior margin conspicuously convex. Abdomen fuscous, rather short; supra-anal plate very short, broad, posterior margin emarginate in the middle, with distinct lateral lobes; subgenital plate short, posterior margin evenly convex, but in the middle very slightly concave; anal process short, obliquely erected

upwards, gradually but very slightly narrowed apically, the tip being not pointed, very slightly curved throughout; cerci long, yellowish.

Legs pale yellowish. Anterior tibiae with a small internal round tympanum; anterior and intermediate metatarsi rather thick, as long as the 3rd joint respectively, the 2nd and 3rd joints somewhat darker. Posterior femora moderately swollen, a little exceeding the abdominal end; tibiae much shorter than the femora, with external spurs short, interno-intermediate one very long, supero-internal nearly half as long as the inferior one; posterior metatarsi with two rows of minute spines, one row consisting of 5-6 spines.

Elytra very large, the extending area being nearly as long as pronotum and of dark brown colour, with posterior margin much darker; speculum large, entirely free from pronotum.

♀. Head and legs as in male. Pronotum nearly as long as wide, very slightly narrowing in front, the posterior margin straight. Abdomen blackish, with 3 basal joints being reddish brown; subgenital plate brown but distinctly darkened basally, rather large, posterior margin distinctly emarginate in the middle; supra-anal plate a little broader than long, not triangular. Ovipositor straight, rather short, as long as hind tibia, with apical valves smooth and narrow.

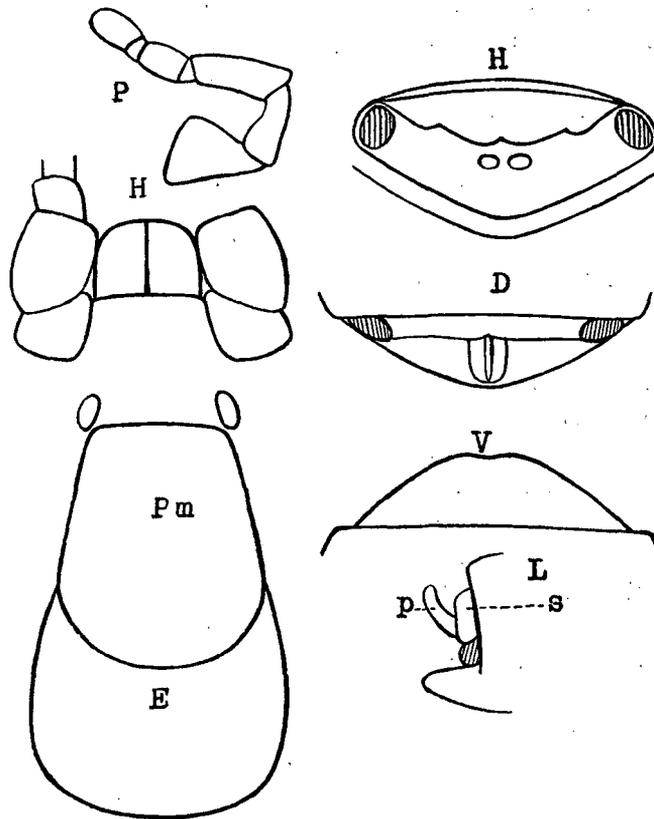


Fig. 4.

*Liphoplus infuscatus* sp. nov.  $\times$  ca. 20, excepting P & E  $\times$  ca. 8. P ..... maxillary palpus seen from external side; H ..... apex of head seen from above; Pm ..... pronotum; E ..... elytra; H ..... anal apex seen from behind; D ..... anal apex seen from above; V ..... anal apex seen from beneath; L ..... apex of abdomen seen from side, s ..... supra-anal plate, p ..... anal process.

Length: Body ♂ 8 mm, ♀ 10 mm; pronotum ♂ 3.1 mm, ♀ 2.1; post. femora ♂ 3.6, ♀ 4.7; ovipositor 4.

Hab.: Formosa—Koshun (VII) 2 ♂ ♂ and 1 ♀.

The species is easily distinguished from others found in Japanese Empire by small body and fuscous wings. Types preserved in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

### 7. *Liphoplus formosanus* SHIRAKI

Monogr. Gryll. Formosa, p. 26 (*Ectatoderus*) (1911).

♀. Pronotum very slightly broadened hindwards, longer than wide, the posterior margin very slightly convex. Abdomen rather long, but not exceeding the posterior femora; supra-anal plate rather long, triangular; subgenital plate slightly concave behind; ovipositor distinctly curved upwards, shorter than the posterior femora, apical valves narrow and smooth.

Length: Body ♀ 10.6 mm; pronotum ♀ 3.1 mm; post. femora ♀ 6.7; ovipositor 5.5 mm.

Hab.: Formosa—Arikan (VIII), Arisan (X), Namakaban (IX), Taito (II), Kanshirei (V), Rono (V).

Types belong to the Entomological Museum of Government Research Institute, Taihoku, Formosa.

### 8. *Liphoplus bimaculatus* sp. nov. (Fig. 5)

Rather oblong species, yellowish, with abdomen blackish.

♂. Head yellowish, covered with greyish scales, a little broader than the anterior margin of pronotum, rather flattened above, a pair of foveolae behind the transversal suture conspicuous; frontal rostrum somewhat reddish, shining, a little broader than the 1st antennal joint, the later being not extended beyond the rostrum, feebly furrowed; face very short, yellowish but a little darkened below, shining. Palpi pale reddish yellow; 5th joint of maxillary palpi nearly as long as the 3rd, rather narrow, triangular, 4th joint conspicuously shorter than the apical joint. Antennae yellowish.

Pronotum pale reddish yellow, covered with greyish scales, slightly narrowed forwards, the posterior margin moderately convex. Abdomen black, obscured by greyish scales, nearly as long as the head and prothorax together; supra-anal plate blackish, short, the median lobe somewhat triangular, the lateral lobes being distinct and moderate in size; subgenital plate blackish, greyish scaled, rather large, somewhat triangular; anal processes dark brown, separately placed, slender and long, pointed apically, when seen from above very slightly sinuate. Cerci very long, yellowish, becoming reddish towards the tip.

Legs comparatively short, yellowish, covered with silver-greyish scales and furnished with a few erected bristles. Anterior tibiae perforated with a very small round tympanum; anterior and intermediate metatarsi rather thick, nearly as long as the third respectively. Posterior femora not reaching to the anal end, moderately swollen; tibiae very short, only  $\frac{2}{3}$  as long as the femora; with external spurs very short, interno-intermediate on elong, supero-internal conspicuously shorter than inferior and a little longer than externo-intermediate one.

Elytra rather shortly extending beyond the pronotum, pale yellow, with two conspicuous transverse dark brown spots along the posterior margin; speculum large, partly concealed under the pronotum.

♀. Darker than male. Pronotum as long as wide, very slightly slenderer forwards. Abdomen with 3 basal segments somewhat paler; supra-anal plate very short, transverse; subgenital plate deeply emarginate in the middle of posterior margin; ovipositor longer than the femora, straight, very inconspicuously curved below, apical valves narrow and smooth.

Length: Body ♂ 9.5 mm, ♀ 11 mm; pronotum ♂ 3 mm, ♀ 2.4 mm; post. femora ♂ 6 mm, ♀ 6.6 mm; ovipositor 7 mm.

Hab.: Formosa—Kashoto (VII).

Described from only one couple, the types being preserved in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

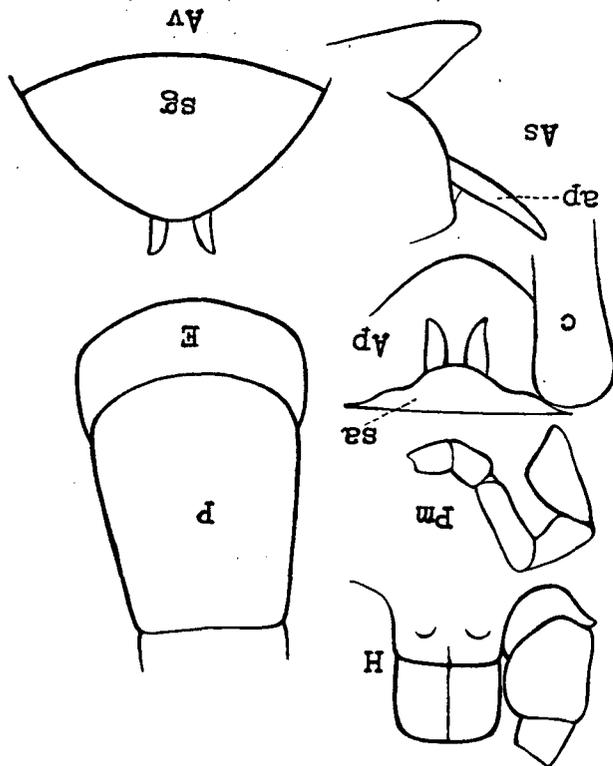


Fig. 5.

*Liphoplus bimaculatus* sp. nov.  $\times$  ca. 20, excepting P & E  $\times$  ca. 8. H ..... Frontal Rostrum; Pm ..... Maxillary palpus seen from external side; Ap ..... anal apex seen from behind, c ..... cercus, sa ..... supra-anal plate; As ..... anal apex seen from side, ap ..... anal process; P ..... pronotum; E ..... elytra; Av ..... anal apex seen from ventre, sg ..... subgenital plate.

9. *Liphoplus kanetataki* MATSUMURA

Thous. Ins. Japan, I, p. 131, pl. VI, fig. 1 (*Ectatoderus*) (1904).

Hab.: Japan—Totomi, Gifu, Tokyo, Kumamoto.

10. *Liphoplus fuscicerci* sp. nov. (Fig. 6)

♂. Fuscous, silver-white scaled. Head dark reddish brown, not broader than pronotum, flattened above; frontal rostrum as wide as the 1st antennal joint, neatly furrowed; face blackish.

Palpi dark brown, with the apical joint yellowish; 5th a little longer than the 3rd, very broad, somewhat triangular with the round apical margin; 4th distinctly shorter than the 3rd; 1st shorter than the 2nd. Antennae yellowish, with the basal joints darker.

Pronotum somewhat reddish, broadened behind, the posterior margin being convex. Abdomen black, moderate in length; supra-anal plate very short, the posterior margin inconspicuously concave in the middle thirds, the lateral corners being rounded; subgenital plate about twice as wide as long, with the posterior margin convex; anal processes cylindrical but very slightly narrowed towards the tip, vertically erected. Cerci black, with the base conspicuously yellow.

Legs brown to dark brown, with metatarsi yellowish, rather thick. Anterior tibiae perforated with an oval tympanum; anterior and intermediate metatarsus as long as the 3rd joint. Posterior femora rather thick, a little extending beyond the abdominal end; external spurs very short, the intermediate one being shorter than the supero-internal spur; interno-median spur conspicuously long, interno-inferior one longer than the superior one.

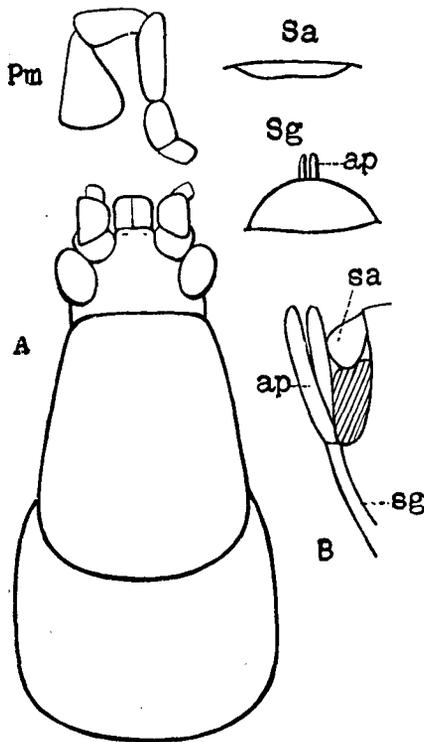


Fig. 6.

*Liphoplus fuscicerci* sp. nov.  $\times$  ca. 8,  
excepting B & Pm  $\times$  ca. 20

A ..... head, pronotum and elytra; Pm .....  
maxillary palpus seen from external side;  
Sa ..... supra-anal plate; Sg ..... subgenital  
plate seen from beneath; B ..... anal end seen  
from side, sa ..... supra-anal plate, sg .....  
subgenital plate, ap ..... anal processes.

Elytra evenly yellowish, conspicuously exceeding behind the pronotum;

mirror rather large, not concealed under the pronotum, the dividing vein being angulated rectangularly.

Length: Body 9 mm: pronotum 3.5 mm; post. femur 6.2 mm; post. tibia 5 mm; elytra 3.5 mm.

Hab.: Formosa—Kotosho (VIII), Taihoku (IX).

Type in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

Subfam. *SCLEROPTERINÆ*

Key to the Japanese Genera

1. Pronotum with sharp lateral carinae; posterior tibiae with two rows of long spines ... ..  
 ... .. *Acanthoplistus* SAUSSURE
- 1<sup>1</sup>. Pronotum with no lateral carinae; posterior tibiae with two rows of serration. Head globular, densely punctate; pronotum longer than wide, densely punctate ... .. *Scleropterus* DE HAAN

Genus *Scleropterus* DE HAAN

Temminck, Verhandel. Orth., p. 232 (1842).

11. *Scleropterus coriaceus* DE HAAN

Temminck, Verhandel. Orth., p. 232, pl. 20, fig. 7 (1877).

Hab.: Japan—Kyoto, Gifu (XII), Tsushima (IX, X); Formosa—Yamano-Taiko (X); Java; Ninpo.

Genus *Acanthoplistus* SAUSSURE

Mél. Orth. V, pp. 456 et 487 (1877).

12. *Acanthoplistus birmanus* SAUSSURE

Mél. Orth. V, pp. 488 et 490, Fig. XXX, fig. 2 (1877).

*Scleropterus coriaceus* KARNY (nec DE HAAN) (part), Suppl. ent. Berlin, IV, p. 70 (Larva only) (1915).

Hab.: Formosa—Kosempo (VII); Burma.

Subfam. *NEMOBIINÆ*

Genus *Nemobius* SERVILE

Ins. Orth., p. 345 (1839).

Key to the Japanese Species

1. Legs unicolour, without blackish band or stripe.

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

**21. *Nemobius ohmachii* sp. nov. (Fig. 7)**

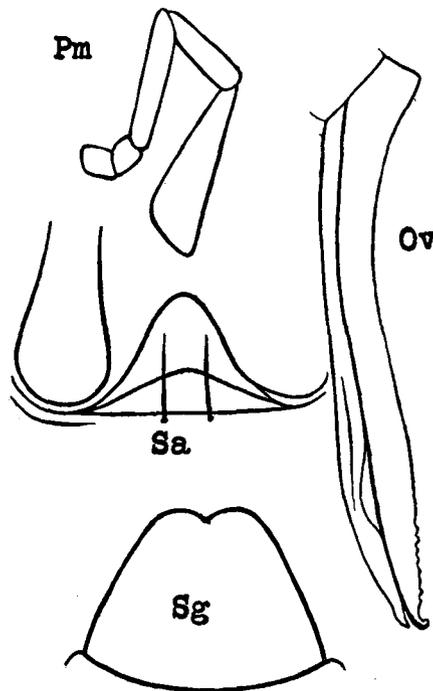
Moderate in size, tawny brown, the sides being rather darker, elytra with very inconspicuous pale irregular markings.

♂. Head scarcely wider than pronotum, occiput rounded, forehead a little sloping, frontal rostrum a little wider than the first antennal joint, bristle-like hairs black; face slightly oblique, strongly shining; palpi light brown, the last 2 joints being pale yellowish; apical joint of maxillary palpi blackish tipped, distinctly longer than the 3rd and nearly twice as long as the 4th, moderately expanded at apex. Antennae light brownish; eyes oval; ocelli yellowish, rather large, disposed in a low-triangle.

Pronotum rather transverse, furnished with black bristle-like hairs; anterior and posterior margins straight; lateral lobes dark brown, the inferior margin being paler, the later nearly horizontal, the anterior and posterior angles rounded.

Abdomen rather short, dark brown with paler ventral side; supra-anal plate triangular, very short; subgenital plate a little shorter than long, the posterior margin very slightly emarginate in the middle; tergite just before supra-anal plate with two parallel bristle-like hairs.

Legs concolorous, tawny yellow, posterior femora darker on the dorsal half. Anterior tibiae slightly compressed, provided at the external face only with a large oblong tympanum; metatarsi as long as two followings together. Intermediate tibiae and metatarsi narrower and a little longer than the anterior ones. Posterior femora moderate in length, very inconspicuously marbled with reddish brown at the external side; tibiae distinctly shorter than femora, armed with 4 spines on each margin; supero-internal spur longer than the remainings, intermediate ones on



**Fig. 7.**

*Nemobius ohmachii* sp. nov.  $\times$  ca. 20.  
Pm ..... ♂ maxillary palpus; Sa .....  
♂ supra-anal plate; Sg ..... subgenital  
plate ♂; Ov ..... ovipositor.

both sides equal in length, inferior spurs very short of which the internal one is shorter than the external spur; metatarsi longer than the two following joints together, furnished with 4 spines on the internal margin and only 2 on the external; each metatarsal spur furnished with two spines.

Elytra reaching to the abdominal end, rounded at apex; speculum rather small, as long as wide, presenting no cell but having a short transversely oblique veinlet about the centre only; 3 cords, the two external of which are much curved, the first one sending a branch to the internal angle of speculum; diagonal vein long, nearly straight; oblique vein only one, very slightly curved inwards; apical field very much reduced, inconspicuously reticulate; lateral field dark brown, with 4 parallel veins. Wings wanting.

♀. A little longer than the male. Elytra leaving three last abdominal tergites free, more or less rounded at apex; longitudinal veins 4 on the dorsal field; lateral field dark castaneous, presenting 4 longitudinal veins. Supra-anal plate transverse, not triangular; subgenital plate very broad, about twice as wide as long, the posterior margin conspicuously emarginated in the middle; ovipositor very short, slightly curved upwards, about  $\frac{2}{3}$  as long as the posterior tibiae, apical valves comparatively long, of which the superior ones are very minutely serrate, having an apical hook.

Length: Body ♂ 8 mm, ♀ 8.5 mm; pronotum ♂ 1.7 mm, ♀ 1.6 mm; elytra ♂ 4.5 mm, ♀ 4 mm; post. femora ♂ 5 mm, ♀ 5.2 mm; post. tibiae ♂ 4 mm, ♀ 4.4 mm; ovipositor 3 mm.

Hab.: Japan—Tokyo.

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

## 22. *Nemobius mikado* SHIRAKI

Monogr. Gryll. Formosa, p. 80, pl. I, fig. 10 (1911).

Hab.: Japan—Tokyo (XI), Ichigo (VII), Gifu (IX); Formosa—Tainan (V), Kotosho (VIII), Hokuto (I), Koshun (IV), Karenko (VII).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa. In the males there is a macropterous form.

## 23. *Nemobius caudatus* SHIRAKI

Monogr. Gryll. Formosa, p. 91, pl. II, fig. 7 (1911).

Hab.: Formosa—Chikutosaki (VI), Taihoku (IV, VI, IX), Horisha (V), Koshun (IV).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

Subfam. *BRACHYTRUPINÆ*

## Key to the Japanese Genera

1. Lateral lobes of pronotum angulate at the anterior angle ... .. *Acheta* LINNÆUS
2. Lateral lobes of pronotum distinctly rounded at the anterior angle ... .. *Brachytrupes* SERVILLE

Genus *Acheta* LINNÆUS

Syst. Nat. (ed. X), I, p. 428 (1758).

*Lyogryllus* SAUSSURE, Mém. Orth., V, pp. 232 et 302, pl. 12, fig. IX (1877).

## Key to the Japanese Species

1. Supero-internal spur of the posterior tibiae longer than the intermediate one; elytra with no yellowish basal spot, speculum elongate, oblique veins only three. Small species ... .. *ritsemæ* SAUSSURE
2. Supero-internal spur of the posterior tibiae as long as the intermediate one; elytra with a large yellowish basal spot, which is sometimes very obsolete, speculum ovate, oblique veins more than four. Large species ... .. *bimaculatus* DE GEER

24. *Acheta ritsemæ* SAUSSURE

Mém. Orth., V, p. 304 (1877).

Hab.: Japan.

25. *Acheta bimaculatus* DE GEER

Mém. Ins., III, p. 521, pl. 43, fig. 4 (*Gryllus*) (1773).

*Acheta capensis* FABRICIUS, Spec. Ins., I, p. 354 (1781).

*Gryllus Acheta rubricollis* STOLL, Gryll. p. 61, pl. IIIc, fig. 15 (1813).

*Gryllus campestris* BLANCHARD, Cuv. Regne Anim. Ins., XIII, p. 18; XIV, pl. 81, fig. 3 (1836?).

*Gryllus interruptus* WALKER, Cat. Derm. Salt. B. M., I, p. 35 (1869).

Hab.: Formosa—Fuhosho, Kashoto, Kankau, Taito, Kagi, Taichu, Taihoku; South Europe; Africa.

Genus *Brachytrupes* SERVILLE

Ins. Orth., p. 323 (1839).

*Brachytrupes* AGASSIZ, Nom. Zool. Ind. Univ., p. 52 (1846).

*Brachytrypus* SAUSSURE, Mém. Orth., V, pp. 232, 278 et 283 (1877).

26. *Brachytrupes portentosus* LICHTENSTEIN

Cat. Mus. Zool. Hamburgi, III, p. 85 (*Acheta*) (1796).

*Gryllus Acheta achatina* STOLL, Gryll. p. 4, pl. IIc, fig. 8 (1813).

Hab.: Formosa—Hozan, Anpin, Kankau, Koshun, Kagi, Heito, Kashoto, Taihoku, Shinchiku; Java; Malay Peninsula; India.

Subfam. *GRYLLINÆ*

## Key to the Japanese Genera

1. Head deform, face always oblique but in female very inconspicuous.
  2. Frons of male prolonged forwards; face flattened, strongly oblique, with median ocellus ... .. *Loxoblemmus* SAUSSURE
  - 2<sup>2</sup>. Frons of male rounded, not produced, with 3 ocelli; face more or less flattened, sometimes at the lower part only, more or less oblique ... .. *Scopsipedus* SAUSSURE
- 1<sup>1</sup>. Head always globular; frons never produced forwards; face rounded, vertical.
  2. Frons between the antennal bases broad; lateral lobes of pronotum angular at the anterior angle, the lower margin being oblique; anterior tibiae perforated with a tympanum on each side; mediastinal vein ramose or rarely simple... .. *Gryllus* LINNAEUS
  - 2<sup>2</sup>. Frons between the antennal bases narrow or broad; lateral lobes of pronotum quadrate or oblique; anterior tibiae perforated with a tympanum on the external side only; mediastinal vein of female simple, of male uniramose ... .. *Gryllodes* SAUSSURE

Genus *Loxoblemmus* SAUSSURE

Msl. Orth., V, pp. 232 et 417, Fig. XVI (1877).

## Key to the Japanese Species

## Male

1. Face with distinct lateral lobes.
  2. Face conspicuously produced laterally, distinctly exceeding the eyes ... .. *doenitzi* STEIN
  - 2<sup>2</sup>. Face not exceeding the eyes laterally.
    3. Basal joint of antennae with a very long, flattened but narrow apical process ... .. *appendicularis* sp. nov.
    - 3<sup>2</sup>. Basal joint of antennae without apical process ... .. *taicoun* SAUSSURE
- 1<sup>1</sup>. Face with no distinct lateral lobes.
  2. Frons conspicuously extending forwards; apical joint of labial palpi very much longer than 4th joint of maxillary palpi, nearly as long as apical joint of the latter ... .. *haanii* SAUSSURE
  - 2<sup>2</sup>. Frons somewhat extending forwards.
    3. Apical joint of labial palpi a little longer than 4th joint of maxillary palpi, very much shorter than apical joint of the latter.
      4. Basal joint of antennae with a distinct long externo-apical tooth-like process; head conspicuously broadened beneath eyes; oblique veins of elytra two or very rarely three; subgenital plate rounded behind... .. *equestris* SAUSSURE
      - 4<sup>1</sup>. Basal joint of antennae with a very short process; head slightly broadened beneath eyes; oblique vein only one... .. *arietulus* SAUSSURE
      - 4<sup>11</sup>. Basal joint of antennae with no trace of process; head slightly broadened beneath eyes; oblique veins two... .. *aomoriensis* sp. nov.
    - 3<sup>2</sup>. Apical joint of labial palpi as long as 4th joint of maxillary palpi; basal joint of antennae with no trace of process; head not broadened beneath eyes ... .. *formosanus* sp. nov.

## Female

1. Apical joint of labial palpi a little longer than third joint of maxillary palpi.
2. Ovipositor shorter than posterior femora.
3. Mediastinal vein ramose.

4. Mediastinal vein uniramose.
5. Lateral field of elytra with 4 longitudinal veins (excepting the mediastinal vein); ovipositor shorter than posterior tibiae; wings wanting ... .. *doenitzi* STEIN
- 5<sup>5</sup>. Lateral field of elytra with 6 longitudinal veins besides the mediastinal; ovipositor as long as posterior tibiae; wings almost always caudate ... .. *haani* SAUSSURE
- 4<sup>4</sup>. Mediastinal vein with 3 branches; lateral field of elytra with 4-5 longitudinal veins besides the mediastinal; ovipositor hardly as long as posterior tibiae; wings wanting ... .. *taicoun* SAUSSURE
- 3<sup>3</sup>. Mediastinal vein not ramose or very rarely uniramose; lateral field of elytra with 5 longitudinal veins (with mediastinal vein); ovipositor a little longer than posterior tibiae... *arietulus* SAUSSURE
- 2<sup>2</sup>. Ovipositor little longer than posterior femora; mediastinal vein uniramose; lateral field of elytra with 4 longitudinal veins (excepting the mediastinal vein) ... .. *aomoriensis* sp. nov.
- 1<sup>1</sup>. Apical joint of labial palpi as long as third joint of maxillary palpi.
  2. Ovipositor distinctly longer than posterior tibiae, but shorter than the femora; mediastinal vein not ramose; lateral field of elytra with 5 longitudinal veins (with mediastinal vein); wings often caudate ... .. *equestris* SAUSSURE
  - 2<sup>2</sup>. Ovipositor as long as posterior tibiae; lateral field of elytra with 6 longitudinal veins; wings wanting ... .. *formosanus* sp. nov.

## 27. *Loxoblemmus doenitzi* Stein

Berlin Ent. Zeitschr., XXV, pp. 95-96; figs. (1881).

*Loxoblemmus frontalis* SHIRAKI, Monogr. Gryll. Formosa, p. 71, pl. I, fig. 9 (1911).

Hab.: Japan—Gifu (IX, X), Kobe, Tokyo (VIII).

Types in the Zoological Museum of Berlin University; types of *frontalis* in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

## 28. *Loxoblemmus appendicularis* sp. nov. (Fig. 8)

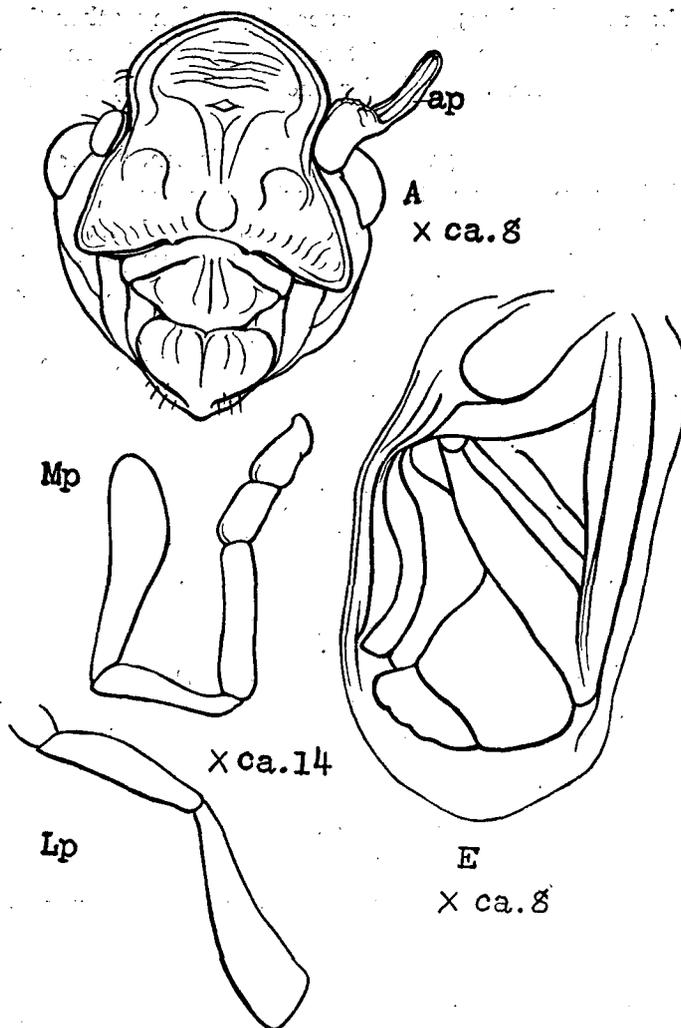
♂. Head as wide as pronotum, blackish, somewhat olivaceous on dorsum, at where it is moderately flattened; frons moderately extending forwards, the tip being rounded, with a narrow yellowish band parallel to the anterior margin; occiput rather slightly convex, with three pairs of short yellowish stripes, the outer pair of which is extending to the band of vertex along the dorsal side of eyes; face as in *taicoun*, but the lateral angles rather pointed, moderately produced but not extending to the eyes. Maxillary palpi brownish, with two basal joints pale yellowish and apical joint darker; 4th joint conspicuously shorter than 3rd; apical joint  $1\frac{1}{2}$  times as long as 3rd, conspicuously broadened apically, obliquely truncate. Labial palpi yellowish white, with the dark tip of 3rd joint; apical joint rather conspicuously thickened at the tip, as long as the apical joint of maxillary palpi or as long as two precedings together. Antennae dark brown, the basal joint rather large, armed with a very long and rather broad process which is lamerate and is conspicuously longer than the joint.

Pronotum slightly broadened in the middle, with anterior margin a little concave, posterior margin straight; lateral lobes black, slightly oblique back-

Fig. 8.

*Loxodermus appendicularis* sp. nov.

A ..... head seen from front; Mp ..... maxillary palpus; Lp ..... labial palpus;  
 E ..... elytron; ap ..... process of antenna.



wards, the anterior and posterior angles rather evenly rounded; disk rather depressed, testaceous, with dark brown irregular markings.

Abdomen blackish, somewhat yellowish brown beneath. Cerci brown.

Legs pale testaceous, mottled with dark brown, the inferior margins of femora with blackish stripe; anterior tibiae with a large oblong external and a very small oval internal tympanum; metatarsi as long as the followings together. Posterior femora spotted with dark brown above and presenting numerous narrow oblique brown stripes at the external side, which are interrupted with two narrow yellowish longitudinal stripes; tibiae armed with 5 internal

and six external spines; supero-external spur longer than the median one, but a little shorter than the supero-internal one, medio-internal the longest, interno-inferior the shortest. Posterior metatarsi with 4 internal and five external denticles.

Elytra not reaching to the apex of abdomen, rather broad, with very short apical field; speculum rather long, without cells; diagonal vein furcate at the base; three cords simple, the 3rd one nearly straight; oblique veins 3, straight; lateral field black, with 5 longitudinal veins. Wings wanting.

Length: Body 12-13 mm; pronotum 2.8 mm; posterior femora 8.5 mm; posterior tibiae 6 mm; elytra 6-6.5 mm.

Hab.: Formosa—Garambi (IV); Niitaka-Gun (VII).

Type in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

**29. *Loxoblemmus haanii* SAUSSURE**

Mél. Orth., V, p. 425, pl. 13, Fig. XVI, fig. 5 (1877).

Hab.: Taihoku (III), Kuraru (V); Java.

**30. *Loxoblemmus equestris* SAUSSURE**

Mél. Orth., V, p. 420, pl. 13, Fig. XVI, fig. 4 (1877).

Hab.: Japan—Koyasan (VIII); Formosa—Chikutosaki (V), Taihanroku (IV), Kotosho (IV), Taihoku (V); Korea—Keijo; Burma; Singapore; Java; Celebes; Luzon.

**31. *Loxoblemmus arietulus* SAUSSURE**

Mél. Orth., p. 421 (1877).

Hab.: Japan—Gifu (IX), Tokyo; Formosa—Taihoku; Java; Sumatra.

**32. *Loxoblemmus aomoriensis* sp. nov. (Fig. 9)**

Rather small species, blackish, with paler appendages.

♂. Head as wide as pronotum, black, moderately depressed above; frons moderately produced forwards, but not exceeding the tip of basal joint of antennae; vertex with a narrow yellowish band; occiput slightly convex, with 3 pairs of inconspicuous yellowish stripes; face very slightly convex at the median area, not produced laterally, with testaceous mouth parts. Maxillary palpi yellowish, with a broad apical ring of 5th joint, which is moderately broadened towards the apex and is twice as long as the 4th.

Pronotum transverse, a little longer than half the width, with anterior margin a little concave, posterior margin nearly straight; lateral lobes rather higher than long, very slightly oblique backwardly, with posterior and an-

terior angles rounded, black, with an inconspicuous yellowish spot near the anterior angle; disk rather convex, blackish, very inconspicuously marmorate with yellowish colour.

Abdomen black, testaceous beneath. Cerci rather short, dark brown.

Legs testaceous, mottled with dark brown. Anterior femora presenting two narrow longitudinal blackish stripes on the external side, of which the upper one is rather inconspicuous; tibiae perforated with a large oblong external and a very small round internal tympanum; metatarsi longer than the followings together. Intermediate femora with two brown spots on the internal side, of which the apical one is large and is continuous to the external spot on the dorsum; metatarsi as long as the followings together. Posterior femora dark brown, with the base and

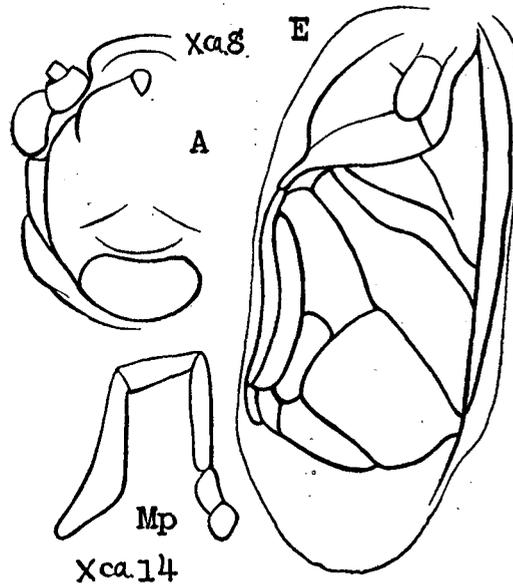


Fig. 9.

*Loxoblemmus amoriensis* sp. nov.

A ..... head; Mp ..... Maxillary palpus seen from external side; E ..... elytron.

inferior side conspicuously paler, scarcely spotted with yellowish above, obliquely striated with yellow on the external side, at where there are two very inconspicuous yellowish longitudinal stripes; tibiae armed with five external and four internal long spines; supero-internal spur longer than the intermediate one, supero-external spur as long as the inferior one, the latter about half as long as the intermediate, medio-internal spur a little longer than the superior one; metatarsi twice as long as the followings together, furnished with 7 external and 8 internal denticles.

Elytra dark brown, not reaching to the apex of abdomen, a little narrowed towards the apex; speculum rather broad, presenting a large posterior cell; veinlet from the first cord at the middle of supero-internal margin of speculum; 3 cords moderately curved and somewhat parallel; diagonal vein very slightly curved, the base very widely furcate; oblique veins three, of which two are completed and rather waved, but the rest is rather conspicuous and also is not entire; lateral field blackish, somewhat paler towards the inferior margin, with 4 longitudinal veins; mediastinal vein simple. Wings wanting.

♀. Head rather globular, strongly convex above; face somewhat deplanate. Anterior and intermediate femora with two blackish stripes on the inferior margins, two dark brown spots on the internal and one on the external side. Elytra rather short, leaving 3 last abdominal segments; dorsal field with three free veins and two or three branches of the discoidal, all of them almost not oblique and irregularly distant; transverse veinlets rather scarce, forming rather wide and irregular reticulation throughout. Wings wanting. Ovipositor long, straight, with small lanceolate apical valves.

Length: Body ♂ 12 mm, ♀ 12 mm; pronotum ♂ 2.2 mm, ♀ 2.3 mm; posterior femora ♂ 6 mm; posterior tibiae ♂ 5.2 mm; elytra ♂ 7 mm, ♀ 6.3 mm; ovipositor 7.2 mm.

Hab.: Japan—Aomori (VI).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

The species is closely allied to *arietulus*, but it is easily distinguished by the simple basal joint of antennae, the comparatively slender head and the venation of elytra.

### 33. *Loxoblemmus formosanus* sp. nov. (Fig. 10)

*Scaptipedus mandibularis* SHIRAKI (nec SAUSSURE), Monogr. Gryll. Formosa, p. 63 (1911).

Testaceous, mottled with brown, moderate in size.

♂. Head as wide as pronotum, moderately depressed above, dark rufous-brown, with a distinct but narrow yellow band just behind the anterior margin of vertex, and 3 pairs of rather narrow and long pale testaceous stripes on occiput; frons very little extending the basal joint of antennae; face depressed, more or less concave, surrounding the median ocellus, not produced laterally. Maxillary palpi yellowish; apical joint at the superior and inferior margins brown, with a distinct brown apical band which is not touching the margin; 4th joint shorter than 3rd, but not very much, with an inconspicuous brownish stripe at the inferior margin. Labial palpi rather thick, the apical joint as long as 4th of maxillary palpi. Antennae brown, basal joint yellowish at the external side, without process.

Pronotum transverse, broadest about the middle, with the anterior margin slightly concave, posterior margin very inconspicuously convex; disk testaceous, mottled with brown; lateral lobes black, with a large yellowish spot in the anterior angle, distinctly oblique backwards, the anterior angle being more or less and the posterior angle strongly rounded.

Abdomen dark brown, testaceous beneath; cerci brown, moderate in length.

Legs pale testaceous, mottled with brown. Anterior femora spotted with

brown above, the internal side with two longitudinal brown spots near the apex and a small rounded one at the base, the external side with a large irregular one just behind the middle and two small ones at both the base and apex; tibiae perforated with a large oblong external and a rather large round internal tympanum; metatarsi as long as the followings together. Posterior femora spotted with brown above, external side obliquely striated with brown, but each stripe being distinctly interrupted twice; tibiae armed with two rows of five spines above; supero-internal spur longer than the externo-intermediate one, supero-external spur as long as the inferior one, medio-internal spur conspicuously longer than the superior one; metatarsi twice as long as the apical joint, furnished with 7 external and 4 internal denticles.

Posterior femora spotted with brown above, external side obliquely striated with brown, but each stripe being distinctly interrupted twice; tibiae armed with two rows of five spines above; supero-internal spur longer than the externo-intermediate one, supero-external spur as long as the inferior one, medio-internal spur conspicuously longer than the superior one; metatarsi twice as long as the apical joint, furnished with 7 external and 4 internal denticles.

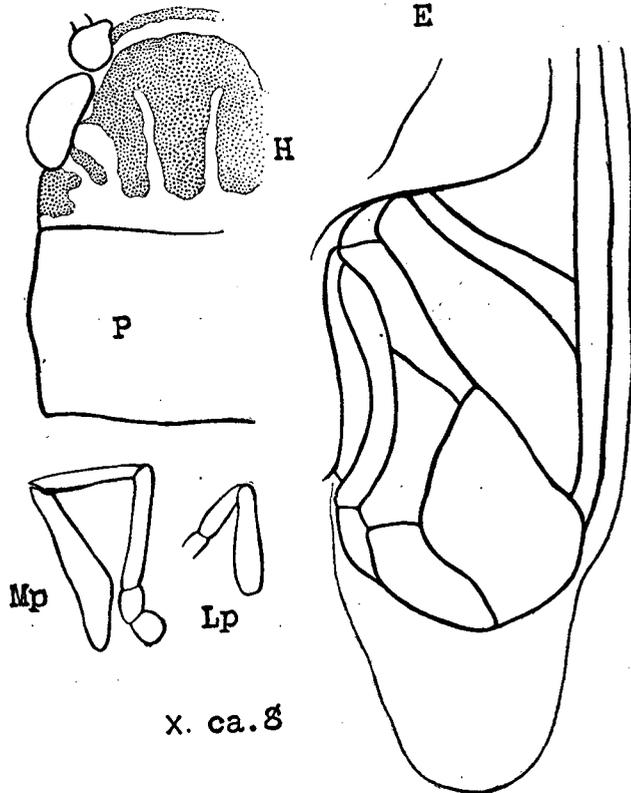


Fig. 10.

*Loxoblemmus formosanus* sp. nov.

H ..... head; Mp ..... maxillary; Lp ..... labial palpi  
seen from external side; E ..... elytron.

Elytra reaching to the apex of abdomen, narrowed apically, with well-developed apical field; speculum as wide as long, with a large interno-posterior cell; diagonal vein straight, the base widely separated; 2 oblique veins slightly waved, rather divergent each other; veinlet from the first cord near the anterior angle of speculum, nearly parallel to the dividing vein; lateral field dark brown at the superior half, the rest being translucent, with 4 free longitudinal veins; mediastinal vein with two oblique veinlets. Wings well-developed, caudate, but in a specimen from Kotosho wanting.

♀. Head rather rounded; face rather evenly depressed; pronotum com-

paratively long, the lateral lobes yellowish at the lower half. Elytra short, leaving 4 last abdominal segments, dorsal field presenting nine little distant, almost longitudinal veins, the first five free, the remains as branches of the discoidal vein, transverse veinlets rather distant and regular; lateral field of elytra castaneous at the upper thirds, the lower  $\frac{2}{3}$  translucent, with 5 parallel veins besides the mediastinal, which is free. Ovipositor straight, shorter than posterior tibia, with narrow lanceolet apical valves.

Length: Body ♂ 15 mm, ♀ 14.5 mm; pronotum ♂ 2.5 mm, ♀ 3 mm; elytra ♂ 10.5 mm, ♀ 7.5 mm; wings ♂ 16 mm; post. femora ♂ 9.5 mm, ♀ 8.5 mm; post. tibia ♂ 8 mm; ovipositor 6.5 mm.

Hab.: Formosa—Taihoku (XII), Kotosho (IV).

Types in the Entomological Museum of Government Research Institute, Formosa, Japan.

#### Genus *Scapsipedus* SAUSSURE

Mél. Orth., V, pp. 232 et 407, Fig. XIV (1877).

#### Key to the Japanese Species

1. Supra-anal plate of male longer than wide, the posterior margin being convex; supra-external spur of posterior tibiae nearly as long as the inferior one ... .. *mandibularis* SAUSSURE
2. Supra-anal plate of male transverse, the posterior margin being straight; supra-external spur  $1\frac{1}{3}$  times as long as the inferior one ... .. *micado* SAUSSURE

#### 34. *Scapsipedus mandibularis* SAUSSURE

Mél. Orth., V, pp. 409 et 414, Fig. XVI, fig. 1 (1877).

*Loxoblemmus detectus* KARNY (nec SERV. nor SAUSSURE), Suppl. Ent., IV, p. 71 (1915).

*Gryllus conspersus* MATSUMURA (nec SCHAUMAN), Thous. Ins. Jap., I, p. 132, pl. VI, fig. 3 (1904); SHIRAKI, Monogr. Gryll. Formosa, p. 50 (1911).

Hab.: Japan—Tokyo; Formosa—Taihoku (XII), Tainan (VI), Anpin (IX), Kankau (VII), Sokutsu, Piran (I), Kotosho (IV); Luzon; India; Ceylon.

#### 35. *Scapsipedus micado* SAUSSURE

Mél. Orth., V, pp. 409 et 415 (1877).

*Gryllus innotabilis* SHIRAKI (nec WALKER), Monogr. Gryll. Formosa, p. 48 (1911).

Hab.: Japan—Gifu (VII), Kiushu; Formosa—Horisha (VI), Garanbi (IV); Celebes.

#### Genus *Gryllus* LINNAEUS

Syst. Nat. (ed. X), p. 425 (1758).

## Key to the Japanese Species

## Male

1. Small species. Oblique veins of elytra only two.
  2. Speculum with a dividing vein; mediastinal vein ramose.
    3. Mesosternum truncate behind; dividing vein of speculum more or less angulate; body and legs yellowish beneath ... .. *ornatus* SHIRAKI
    - 3<sup>s</sup>. Mesosternum distinctly sinuate behind; dividing vein slightly curved, the speculum being rather flat; body and legs brownish beneath ... .. *arisanicus* sp. nov.
  - 2<sup>s</sup>. Speculum with no dividing vein; lateral field of elytra presenting 3 longitudinal veins besides mediastinal vein, which is not branched. Very small species... .. *minor* SHIRAKI
- 1<sup>s</sup>. Oblique veins of elytra 3 or 4.
  2. Mediastinal vein ramose. Rather large species.
    3. Mediastinal vein 2- or 3-ramose.
      4. Oblique veins 3, the external two of which are united together before the base; speculum distinctly longer than wide, presenting a strongly curved dividing vein; subgenital plate slightly concave behind. Blackish brown species... .. *plebejus* SAUSSURE
    - 4<sup>s</sup>. Oblique veins 3, the external one of which is bifurcate; speculum distinctly broader than long, presenting a slightly curved dividing vein; subgenital plate not concave behind, distinctly keeled at the apex. Yellowish brown species ... .. *fallaciosus* sp. nov.
  - 3<sup>s</sup>. Mediastinal vein multi-ramose; oblique veins 4; speculum longer than wide, with a strongly curved dividing vein; subgenital plate not concave behind, distinctly but very shortly keeled at the apex.
    4. Mesosternum triangularly emarginate behind... .. *testaceus* WALKER
    - 4<sup>s</sup>. Mesosternum truncate, not sinuate ... .. *nitratius* BURMEISTER
  - 2<sup>s</sup>. Mediastinal vein simple; oblique veins 3; speculum quadrate, with no dividing vein. Very small species ... .. *nipponensis* SHIRAKI

## Female

1. Rather small species. Elytra very short or not reaching to the apex of abdomen.
  2. Mediastinal vein simple.
    3. Elytra very short, mottled with brown or dark brown.
      4. Dorsal field of elytra presenting only three distinct longitudinal veins.
        5. Ovipositor longer than posterior femora; elytra distinctly shorter than the head and pronotum together, the dorsal field presenting a scarce reticulation; vertex without band ... .. *minor* SHIRAKI
        - 5<sup>s</sup>. Ovipositor shorter than posterior femora, as long as posterior tibiae; elytra a little longer than the head and pronotum together, the dorsal field with numerous transverse veinlets; vertex with a distinct band ... .. *nipponensis* SHIRAKI
      - 4<sup>s</sup>. Elytra as long as the head and pronotum together, the dorsal field presenting more than 5 distinct longitudinal veins, transverse veinlets moderate in number; vertex with a distinct band; ovipositor apparently shorter than posterior tibiae ... .. *maculatus* sp. nov.
    - 3<sup>s</sup>. Elytra long, but not reaching to the apex of abdomen; wings developed, but not caudate; black, with legs orange yellow ... .. *splendens* sp. nov.
  - 2<sup>s</sup>. Mediastinal vein with one or two branches.
    3. Metasternum not furnished with yellowish bristly hairs. Elytra almost always shorter than the head and pronotum together; wings wanting ... .. *ornatus* SHIRAKI
    - 3<sup>s</sup>. Metasternum furnished with numerous black bristly hairs at the tip of lateral lobes. Elytra long but not reaching to the apex of abdomen; wings very long, caudate, whitish... .. *ornatus caudatus* nov.

- 1<sup>1</sup>. Rather large species. Elytra long, reaching to the apex of abdomen; wings developed, caudate.
2. Mediastinal vein with two or three branches; ovipositor distinctly shorter than posterior femora.  
Medium-sized species ... .. *plebejus* SAUSSURE
- 2<sup>2</sup>. Mediastinal vein multi-ramose; ovipositor longer than posterior femora. Rather large species.
3. Mesosternum triangularly emarginate behind ... .. *testaceus* WALKER
- 3<sup>3</sup>. Mesosternum not emarginate behind ... .. *mitratus* BURMEISTER

### 36. *Gryllus mitratus* BURMEISTER

Handb. Ent. II, p. 734 (1838).

*Gryllus occipitalis* SERVILLE, Ins. Orth., p. 339 (1839).

Hab.: Japan—Nikko, Nagoya, Gifu, Kiushu, Oshima, Okinawa; Formosa—Taihoku (VIII), Koshun (V), Karenko (VIII), Taihorin (IV), Kankau (V), Ako (X); Java; Malacca; Nepal.

Types in the Natural History Museum of Berlin University, Berlin, Germany.

### 37. *Gryllus testaceus* WALKER

Cat. Derm. Salt. B. M. I, p. 38 (1869).

Hab.: Japan—Tamagawa (Tokyo); China; India; Malacca; Ceylon.

Japanese species mostly very dark coloured.

### 38. *Gryllus fallaciosus* sp. nov.

*Gryllodes berthellus*? KARNY, Suppl. Ent. IV, p. 71 (1915).

♂. Very near to *testaceus* WALKER, but easily distinguished by the truncate mesosternum, as well as by rather slender body.

Yellowish brown, medium in size. Head castaneous, with two yellowish transverse bands above, of which the very narrow one is placed between the lateral ocelli, and the other broader one between the posterior halves of eyes, extending below to the jaws along the posterior halves of eyes, the anterior margin of this band being multi-notched; face with an indistinct pale shaped line in the middle; labrum slightly paler, the lower margin being yellowish; palpi pale yellow, the apical joint of maxillary palpi pale brownish; antennae dark brown, the basal joint becoming paler.

Pronotum brown, anterior margin, -shaped median stripe and broad lateral stripes yellowish, as wide as head, moderately depressed above, with the anterior margin very slightly concave, posterior margin very slightly sinuate; crescent marks small and narrow, the internal end being more or less pointed; median longitudinal stripe more or less distinct. Lateral lobes of pronotum brown, with narrow anterior and broad inferior marginal stripes yellowish, about 1½ times as long as wide; anterior margin very slightly convex, inferior margin oblique backwards and moderately convex; anterior angle more or less rounded; posterior lobe yellowish but dark castaneous beneath. Elytra long and narrow behind, but not reaching to the apex of abdomen; dorsal field pale brown,

the side being yellowish; oblique veins 3, distinctly waved, the external one tri-furcate; speculum wider than long, all of corners being more or less rounded, presenting a arched dividing vein; lateral field pale yellowish, with a dark brown stripe at the superior margin, longitudinal veins 8, of which the upper two are branches of mediastinal vein. Wings caudate, not reaching to the tip of cerci, the tail brownish and about  $\frac{2}{3}$  as long as elytra. Legs pale yellowish brown; anterior tibiae with a large elliptical external and a small oval internal tympanum; posterior tibiae presenting 7 internal and 8 external spines, which are distinctly shortened gradually towards front. Mesosternum very indistinctly concave behind; metasternum slightly concave behind.

Abdomen rather short; subgenital plate longer than two preceding sternites together, moderately rounded behind, the median carina distinct and about half as long as the plate.

Length: Body 19 mm; pronotum 3.5 mm; elytra 11.5 mm; wings ca. 18 mm; cerci 11 mm; posterior femora 11 mm; post. tibiae 7 mm; subgenital plate 3.2 mm.

Hab.: Anpin (VIII).

Type in "Deutsches Entom. Museum", Dahlem-Berlin, Germany.

**39. *Gryllus plebejus* SAUSSURE**

Mél. Orth., V, p. 333 (1877).

Hab.: Formosa—Anpin (VI), Ako (V), Gozenjo (IV); Burma; Philippines.

**40. *Gryllus nipponensis* SHIRAKI**

Monogr. Gryll. Formosa, p. 56, pl. I, fig. 6 (1911).

Hab.: Japan—Gifu (IX), Tokyo (IX).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

**41. *Gryllus minor* SHIRAKI**

Monogr. Gryll. Formosa, p. 54, pl. I, fig. 5 (1911).

Hab.: Japan—Gifu (IX), Tokyo.

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

**42. *Gryllus ornatus* SHIRAKI**

Monogr. Gryll. Formosa, p. 52, pl. I, fig. 4 (♀) (1911).

♂. Head very slightly wider than pronotum; branches of epicranial suture conspicuously divergent, at the junction with the stem being very slightly angulated; maxillary palpi yellowish, 3 apical joints brown at the inferior half,

apical joint as long as the 3 basal joints together; apical joint of labial palpi a little longer and thicker than 3rd joint of maxillary palpi. Elytra not reaching to the apex of abdomen, dorsal field lighter than in the female, lateral field coloured as in the female; diagonal vein straight, moderate in length, very shortly furcate at the base; oblique veins 2, slightly curved, slightly divergent; veinlet from first cord near the anterior angle of speculum, somewhat S-like curved; speculum quadrate, as long as wide, presenting a very flat posterior cell, the dividing veinlet rectangularly bent; apical field very short; lateral field presenting three longitudinal veins besides the mediastinal vein, which is bi- or tri-ramose.

Length: ♂. Body 12.5–13 mm; pronotum 2.5–3 mm; elytra 7–7.2 mm; post. femora 7.2–7.5 mm; post. tibiae 6–6.2 mm.

Hab.: Formosa—Horisha (V), Rikiriki (IV), Nanto (VI), Koshun (VI).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa; closely allied to *Grylloides berthellus*, but it is easily distinguished from it by the smaller size, the form of speculum, and the number of longitudinal veins of lateral field of elytra, of branches of mediastinal vein and of spines of posterior tibiae, as well as by the absence of internal tympanum of anterior tibiae.

var. *caudatus* nov.—Elytra long, but not reaching to the apex of abdomen; wings caudate, reaching to the tip of ovipositor, white, with a few dull brown longitudinal veins; metasternum furnished with numerous black bristly hairs at the apical margin of lobes. Rather near to *Gryll. minimus* CHOP.

Hab.: Formosa—Rikiriki (VIII).

#### 43. *Gryllus arisanicus* sp. nov. (Fig. 11)

♂. Dark brown, with paler legs. Head slightly broader than pronotum, moderately rounded, black, very shining; vertex oblique, with a rather broad yellowish band; occiput rather slightly convex, with 3 pairs of very inconspicuous stripes, of which the central one nearly obsolete; frons convex, very little wider than twice the width of antennal basal joint; face nearly perpendicular, presenting a pair of yellowish white transverse spots at the basal side of clypeus; maxillary palpi brown, apical joint distinctly shorter than the 2nd and 3rd ones together, 4th joint a little shorter than 3rd, the latter being as long as the basal two joints together; labial palpi short, but thick, apical joint strongly enlarged towards the apex and as long as 4th joint of maxillary palpi. Antennae brownish, darkened apically.

Pronotum very slightly narrowed behind; anterior margin inconspicuously concave, posterior margin very slightly convex; disk blackish brown, marbled with yellowish colour, crescent spots rather large. Mesosternum very slightly

emarginated in the middle of posterior margin, where with rather a few brown bristly hairs.

Abdomen dark brown and mottled with yellowish colour above, yellowish beneath; supra-anal plate wider than long, distinctly convex behind; cerci moderate in length, brown.

Legs pale testaceous. Anterior femora irregularly spotted with blackish brown; tibiae brown, presenting a large oblong external and a very small internal tympanum; metatarsi narrow, as long as the followings together. Posterior femora obliquely striated with brown, excepting the lower half of internal side and the inferior side, two very narrow dark brown longitudinal stripes at the basal half of external side; tibiae armed with two rows of 5 spines; supero-external spur inconspicuously shorter than the internal one, supero-internal spur a little shorter than the intermediate one, interno-intermediate spur distinctly shorter than the externo-intermediate one; metatarsi much longer than the followings united, with 6 external and 7 internal denticles.

Elytra rather short, leaving three abdominal segments besides the supra-anal plate, testaceous, with lateral field

dark castaneous, excepting the translucent base of inferior margin; two oblique veins wide distant, the first one being slightly concave and the second S-like curved; diagonal vein slightly curved, rather short, presenting two fine veinlets near the base, of which the posterior one is united with first cord just below the base; 3 cords rather strongly curved, a veinlet from the first cord to diagonal vein just above the anterior angle of speculum; speculum broad, with two rather large posterior cells, presenting a arched dividing vein; apical

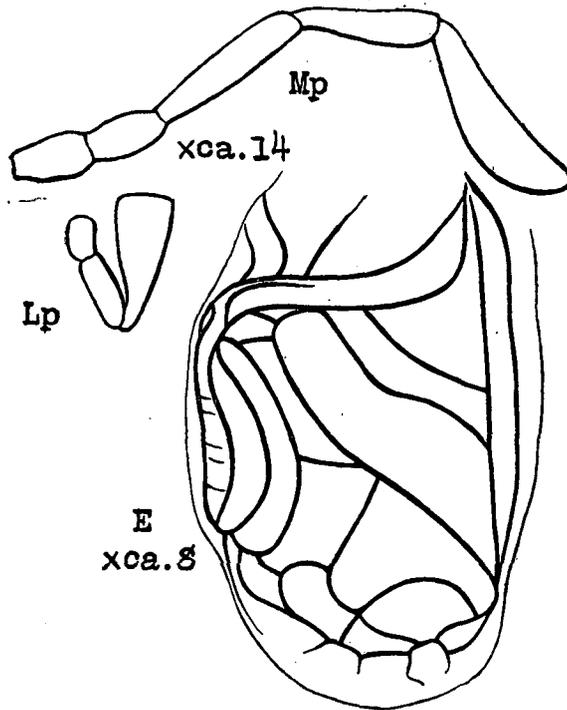


Fig. 11.

*Gryllus arisanicus* sp. nov.

Mp ..... maxillary palpus; Lp ..... labial palpus;  
E ..... elytron.

field very short and broad; lateral field presenting 5 longitudinal veins besides the mediastinal vein, which is bi-ramose.

Length: Body 15.5 mm; pronotum 3 mm; elytra 6.8 mm; post. femora 9.5 mm; post. tibiae 6.8 mm.

Hab.: Formosa—Arisan (X).

Type in the Entomological Museum of Government Research Institute, Taihoku, Formosa; near to *Gryllodes berthellus* SAUSSURE, but easily distinguished by palpi, wings, legs, etc.

**44. *Gryllus maculatus* sp. nov. (Fig. 12)**

♀. Small species, dark brown. Head as wide as pronotum, rather short, evenly rounded, dark castaneous; frons less than twice the width of basal joint of antennae; vertex presenting a narrow somewhat angulate yellow band; occiput with a broad yellowish band; antennae dark brown, becoming paler towards the base; face yellowish, dark castaneous about the middle. Maxillary palpi brown, with the basal two joints yellowish; apical joint nearly as long as the 2nd and 3rd joints together; 4th joint very little shorter than the preceding one. Labial palpi pale testaceous; apical joint distinctly shorter than 4th of maxillary palpi.

Pronotum narrowed forwards, broadest about the middle; with both anterior and posterior margins nearly straight; disk dark brown, marbled with pale yellow, the crescent-marks moderate in size and very slightly curved; lateral lobes very slightly oblique backwards, with the anterior angle more or less angulate, posterior one arched, dark brown, presenting a large yellowish spot in the anterior angle, the posterior area marbled above with pale yellow. Mesosternum slightly sinuate behind.

Abdomen on dorsum dark brown, maculated with dirty yellow, on ventre dirty yellow; supra-anal plate as long as wide, with posterior margin strongly rounded; subgenital plate wider than long, nearly half as long as the preceding sternite, very slightly concave behind; ovipositor very short, straight, a little longer than posterior tarsi.

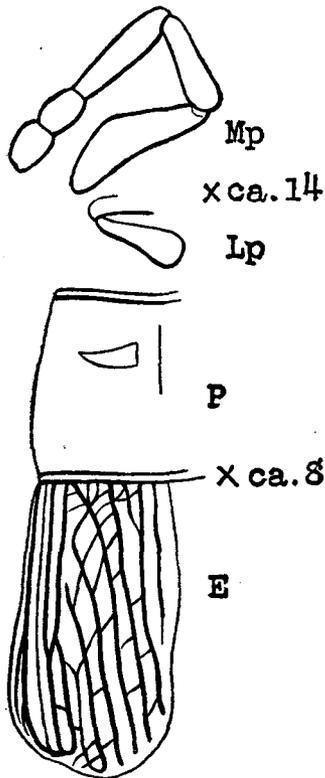


Fig. 12.

*Gryllus maculatus* sp. nov.

Mp ..... maxillary palpus; Lp .....  
labial palpus; P ..... pronotum;  
E ..... elytron.

Legs pale testaceous, maculated with dark brown. Anterior tibiae with a large oblong external and a comparatively large oval internal tympanum, dark brown, presenting a rather broad pale yellowish longitudinal stripe on both internal and external sides. Posterior femora maculated with brown above, obliquely striated with brown at the external side, internal side similarly striated at the apex only; tibiae rufous-brown beneath, presenting a broad similar coloured basal ring, the superior side spotted with brown at the bases of spines, armed with two rows of 4 spines above; supero-external spur shorter than the inferior one, supero-internal spur distinctly shorter than the intermediate one; metatarsi very long and slender, about twice as long as the apical joint, presenting 7 external and 4 internal denticles.

Elytra nearly as long as the head and pronotum together, leaving 4 apical abdominal tergites besides the supra-anal plate; dorsal field dark castaneous; with side between the discoidal and mediastinal veins yellowish, presenting 7 longitudinal veins and rather a few transverse veinlets, discoidal vein bi-furcate; lateral field blackish, with the inferior two-thirds translucent, longitudinal veins 4 besides the mediastinal vein, which is simple.

Length: Body 10 mm; pronotum 2.5 mm; elytra 4 mm; post. femora 7 mm; post. tibiae 5.5 mm; ovipositor 4.3 mm.

Hab.: Formosa—Naifunpo (IX).

Only one female (Type) in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

#### 45. *Gryllus splendens* sp. nov. (Fig. 13)

Blackish, with legs orange-yellow, small species; rather near to *Gryll. pallipes* CHOP. and also *Gryll. flavipes* CHOP., but easily distinguished by the form of lateral lobes of pronotum and others.

♀. Head blackish castaneous, without any marking but slightly paler towards the mouth parts, very little broader than pronotum, strongly sloping above but occiput conspicuously convex, face rather rounded; antennae brown, basal joint comparatively broad and castaneous, 2nd joint conspicuously blackish; maxillary palpi orange-yellow, short and thick, apical joint a little shorter than the 2nd and 3rd joints united, basal joint much shorter than 2nd; labial palpi very thick, apical joint longer than 4th joint of maxillary palpi or  $\frac{4}{5}$  as long as the apical joint of the latter.

Pronotum about  $\frac{3}{4}$  as long as wide, nearly parallel-sided, with the anterior and posterior margins straight, entirely blackish castaneous, pubescence yellowish brown but bristly hairs black, the crescent-markings comparatively large and distinctly curved; lateral lobes same coloured to dorsal disk, slightly oblique backwards, with the anterior angle distinctly angulate, posterior angle rounded.

Sternum orange-yellow; mesosternum rather small, posterior margin very slightly emarginate in the middle; metasternum large, rounded behind but slightly emarginate in the middle.

Abdomen rufous-black, with sternites dirty orange-yellow; supra-anal plate dark castaneous, rather broad, a little longer than wide, nearly straightly truncate behind; subgenital plate testaceous, a little longer than the preceding sternite; ovipositor light yellow, very slender, distinctly longer than the posterior tibiae, moderately curved upwards, apical valves slender and rather long; cerci long, not cylindrical, rather compressed, a little exceeding the tip of ovipositor, the basal half broadened, the rest being thin, on the internal side there are very few inconspicuous annulations.

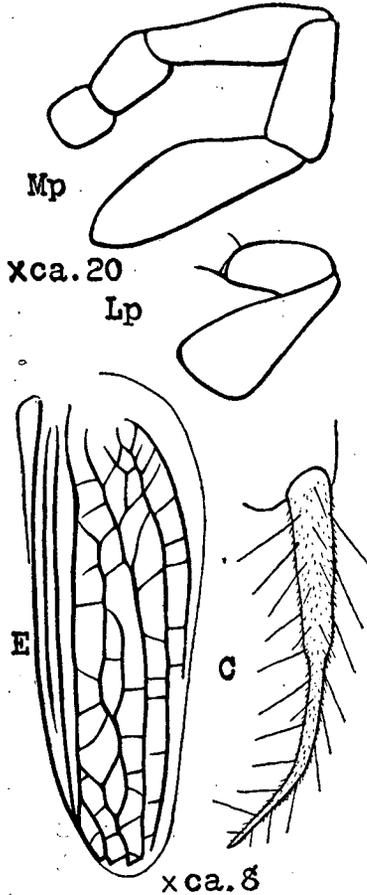


Fig. 13.

*Gryllus splendens* sp. nov.

Mp ..... maxillary palpus; Lp .....  
labial palpus; E ..... elytron; C ....  
cercus.

Legs rather thick, orange-yellow, with posterior tibiae and broad apical band of posterior femora brown. Anterior femora longer than tibiae; tibiae as long as tarsi, perforated with a large oblong external and a very minute oval internal tympanum; metatarsi broad, scarcely as long as the following joints united. Intermediate femora as long as the tibiae; metatarsi slender, as long as the following joints united. Posterior tibiae armed with two rows of 5 yellowish spines, which are brown tipped; supero-external spur as long as the inferior one, interno-intermediate spur distinctly longer than the superior one or as long as externo-intermediate one; metatarsi with 6 external and 5 internal denticles.

Elytra rather narrow, leaving 3 apical tergites besides the supra-anal plate, distinctly narrowed behind, blackish brown, somewhat becoming paler at the base of costal margin; dorsal field presenting 4 longitudinal veins, which are irregularly reticulated by rather numerous veinlets, discoidal vein with two very irregular and short branches; lateral field presenting 4 longitudinal veins besides the mediastinal vein, the latter being simple. Wings present, whitish, not caudate but reaching to the apex of abdomen.

Length: Body 20 mm; pronotum 2.5 mm; elytra 5.6 mm; wings 6.4 mm; post. femora 6.5 mm; post. tibiae 4.3 mm; ovipositor 6.4 mm.

Hab.: Formosa—Taihoku (VI).

One female (Type) in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

### Genus *Gryllodes* SAUSSURE

Miss. Mex. Orth., p. 409 (1874).

#### Key to the Japanese Species

##### Male

1. Oblique veins 2; speculum more or less quadrate, not transverse; occiput moderately rounded.
2. Frons distinctly narrowed forwards, the apex about as wide as the basal joint of antennae; subgenital plate moderately convex apically; speculum presenting very irregular veinlets. Pale testaceous; occiput and pronotum yellowish, the latter brown at the anterior margin and posterior border ... .. *sigillatus* WALKER
- 2<sup>2</sup>. Frons not very narrow; head and pronotum brown to blackish brown; speculum with a distinct dividing vein.
3. Dividing vein of speculum roundly curved; subgenital plate rather truncate ... .. *berthellus* SAUSSURE
- 3<sup>3</sup>. Dividing vein angulate; subgenital plate more or less pointed ... .. *hemelytrus* SAUSSURE
- 1<sup>1</sup>. Oblique veins 3; speculum about twice as wide as long, presenting a dividing vein curved roundly; occiput strongly swollen; frons broad; subgenital plate rather broad, more or less concave behind ... .. *koshunensis* SHIRAKI

##### Female

1. Ovipositor straight; elytra distinctly narrowed behind.
2. Frons between the antennal bases much broader than the basal joint of antennae.
3. Head usually convex above; median sulcus of subgenital plate half as long as its length ... .. *berthellus* SAUSSURE
- 3<sup>3</sup>. Head strongly swollen above; median sulcus of subgenital plate very short and rather indistinct ... .. *koshunensis* SHIRAKI
- 2<sup>2</sup>. Frons between the antennal bases as wide as the basal joint of antennae; median sulcus of subgenital plate rather indistinct, about  $\frac{1}{3}$  as long as subgenital plate... .. *sigillatus* WALKER
- 1<sup>1</sup>. Ovipositor curved upwards; frons moderately convex, the space between the antennal bases much broader than the basal joint of antennae; median sulcus of subgenital plate very fine; elytra very short, not narrowed behind... .. *hemelytrus* SAUSSURE

#### 46. *Gryllodes sigillatus* WALKER

Cat. Derm. Salt. B. M. I, p. 46 (*Gryllus*) (1869).

*Gryllus pustulipes* WALKER, l. c. p. 51 (1869).

*Gryllodes poeyi* SAUSSURE, Miss. Mex. Orth., p. 420, pl. 7, fig. 8 (1874).

*Acheta tokyonis* OKASAKI Dōbutsu-kyōzai, Kōrogi, p. 206, pl. III, fig. 4 (1926).

Hab.: Japan—Tokyo (VIII, IX); Korea—Keijo (IX); India; Mauritius; Hawaii; Mexico; South America; West Indies; Australia.

Types in the British Museum, London.

**47. *Gryllodes berthellus* SAUSSURE**

Mél. Orth. V, pp. 373 et 367 (1877).

Hab.: Japan—Gifu (IX), Tokyo, Iki; Formosa—Anpin (VI), Horisha (IV), Taihoku (VI); Korea—Keijo; China; Burma; India; Ceylon; Amboina; Java.

The species may be removed to the genus *Gryllus*.**48. *Gryllodes hemelytrus* SAUSSURE**

Mél. Orth. V, pp. 367 et 376 (1877).

Hab.: Formosa—Anpin (VII); Java.

**49. *Gryllodes koshunensis* SHIRAKI**

Monogr. Gryll. Formosa, p. 61, pl. I, fig. 8 (1911).

Hab.: Formosa—Koshun (XII), Kusukusu (IV).

It is very doubtful that the species belongs to the genus *Gryllodes*. Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.Subfam. *GRYLLOMORPHINÆ***Key to the Japanese Genera**

1. Body not conspicuously chitinized; head a little narrower than pronotum, rather narrowed beneath the eyes; face distinctly elevated in the middle below the frontal process ... *Landreva* WALKER
2. Body strongly chitinized; head broader than pronotum, conspicuously broadened below the eyes; face rather flat, never elevated ... .. *Paralandrevus* SAUSSURE

Genus *Landreva* WALKER

Cat. Derm. Salt. B. M. I, p. 55 (1869).

*Ectolandrevus* SAUSSURE, Mél. Orth. V, p. 445 (1877).**50. *Landreva clarus* WALKER**

Cat. Derm. Salt. B. M. I, p. 39 (1869).

*Landreva insignis* WALKER, Cat. Derm. Salt. B. M. I, p. 55 (1869).*Landrevus pictus* SAUSSURE, Mél. Orth. V, p. 445 (1877).

Hab.: Formosa—Anpin (IX), Taihoku (IV), Kashoto (IV); Ceylon.

Types of WALKER in the British Museum; type of SAUSSURE in the Natural History Museum of Berlin University.

Genus *Paralandrevus* SAUSSURE

Mél. Orth. V, p. 440, Fig. XXV, fig. 5 (1877).

## Key to the Japanese Species

## Male

1. Elytra subquadrate, yellowish brown, with lateral field blackish castaneous, presenting 4 oblique veins more or less waved and divergent; supra-anal plate comparatively long, rounded behind...  
... .. *coulonianus* SAUSSURE
2. Elytra very small, rounded, much coriaceous, unicolor, blackish castaneous, presenting 6 oblique veins straight but not conspicuous; supra-anal plate comparatively broad, truncate behind ... ..  
... .. *coriaceus* sp. nov.

## Female

1. Elytra with 9-10 complete longitudinal veins, subgenital plate concave behind ... ..  
... .. *coulonianus* SAUSSURE
2. Elytra with more than 12 complete longitudinal veins; subgenital plate not sinuate behind ... ..  
... .. *coriaceus* sp. nov.

51. *Paralandrevus coulonianus* SAUSSURE (Fig. 14, Bg)

Mél. Orth. V, p. 441, Fig. XXV, fig. 1 (*Landrevus*) (1877).

Hab.: Formosa—Kuraruru (V), Hozan (IX), Karenko (VII, IX), Taito (II, III), Kanko (VII), Shinchiku (VII), Shinten (VII); Java.

52. *Paralandrevus coriaceus* sp. nov. (Fig. 14)

Allied to the preceding species, but in the male easily distinguished by small coriaceous elytra, or form of genitalia, and in the female by very small triangular elytra, or form of maxillary palpi.

♂. Testaceous, rather slender. Head much broader than pronotum; face black, with mouth parts yellowish, with labrum pale castaneous, clypeus pale yellow. Antennae brown, comparatively short, longer than twice the length of body. Maxillary palpi yellowish, somewhat brownish at the 3 apical joints; apical joint very inconspicuously longer than the 3rd; 4th joint narrower or very slightly shorter than the 3rd; 3rd joint shorter than the preceding two united, the latter being equal in length. Labial palpi pale yellow, very broad and short; apical joint rather triangular, about as long as two basal joints united or shorter than the 4th of maxillary palpi; 2nd joint rounded.

Pronotum transverse, broadest in the middle, with the anterior margin slightly concave, posterior margin very slightly convex; crescent markings rather blackish; lateral lobes darker than dorsum, slightly oblique backwards, anterior angle rounded, posterior lobes rounded behind. Prosternal tubercles rather conspicuous; mesosternum rather deeply emarginate behind; metasternum rather triangular behind but conspicuously emarginate in the middle.

Abdomen very long, depressed above, castaneous, becoming darker behind, sternites yellowish brown; cerci brown, nearly as long as abdomen; lateral valves of genitalia yellowish brown, presenting two spine-like processes, the anterior one being rather long and curved below, the posterior one very short and straight (in *coulonianus* the posterior process is very long and curved

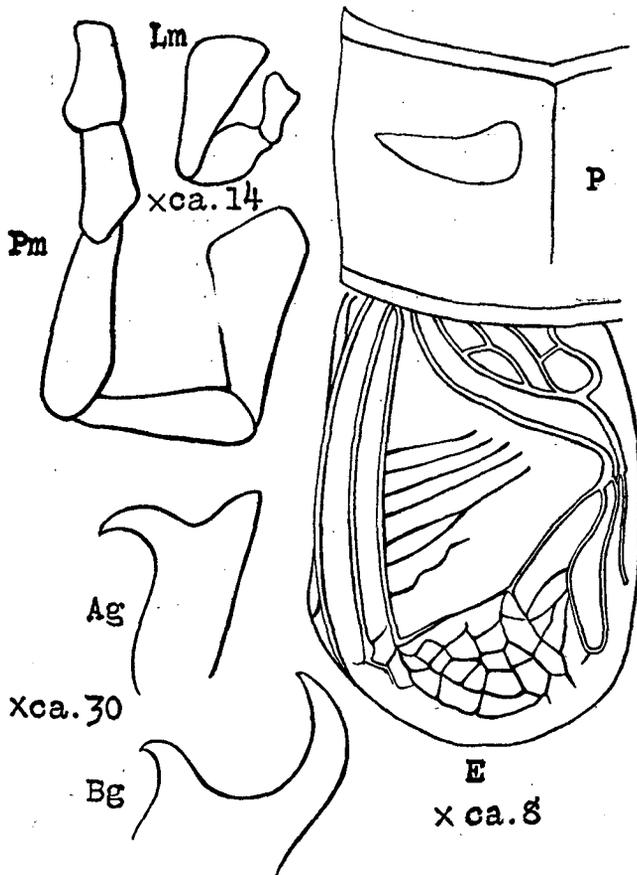


Fig. 14.

*Paralandrevus coriaceus* sp. nov.

Lm ..... labial palpus; Pm ..... maxillary palpus; P ..... pronotum; E ..... elytron; Ag ..... left genital process seen from external side; Bg ..... left genital process of *coulonianus* seen from external side.

forwards).

Legs yellowish brown, with the tibiae somewhat brownish, posterior femora nearly concolorous. Anterior femora very slightly longer than tibiae, the latter perforated by similar oval tympanum on both the sides; metatarsi rather short and broad, very slightly shorter than the third joint. Posterior femora hardly reaching to the apex of abdomen; tibiae armed with 2 rows of 4 spines, besides one denticle on each side; supero-internal spur as long as the intermediate, inferior spur on each side about equal in length or distinctly longer than supero-external one, externo-intermediate spur distinctly shorter than supero-internal one; metatarsi presenting 5

external and 4 internal spine-like denticles.

Elytra very small, rounded behind, strongly coriaceous but venation rather conspicuous, dark castaneous evenly; diagonal vein very short, rather straight; oblique veins 5, of which the posterior one is long-furcate; cords less curved, the first one presenting 3 inconspicuous veinlets; speculum not conspicuous, occupied with an irregular reticulation nearly all over the field; apical field very short; lateral field with 5 longitudinal veins, of which the 3rd and 4th are united together just before their bases.

♀. Darker than male, rather broad. Elytra very small; dorsal field nearly

triangular, broader than long, rather membranous and yellowish, presenting 5 distinct longitudinal veins, which are not reticulated; lateral field dark castaneous, rather coriaceous, presenting 4 longitudinal veins. Posterior femora distinctly longer than abdomen or much extending beyond the apex of abdomen. Ovipositor orange-yellow, straight, very slender, as long as pronotum and abdomen united, apical valves very narrow.

Length: Body ♂ 24.5 mm, ♀ 18 mm; pronotum ♂ 3.3 mm, ♀ 3.2 mm; elytra ♂ 5 mm, ♀ 2.5 mm; post. femora ♂ 12.5 mm, ♀ 13 mm; post. tibiae ♂ 8.1 mm, ♀ 8.5 mm; ovipositor 13 mm.

Hab.: Formosa—Arisan (X).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

Subfam. *OECANTHINÆ*

Genus *Oecanthus* SERVILLE

Ann. Sci. Nat. XXII, p. 134 (1831).

*Aecanthus* BRULLÉ, Hist. Nat. Ins., IX, p. 174 (1835).

*Gryllomyia* SEIDL, Weitenweber, Beitr. ges. Nat. Heilwiss. I, p. 212 (1837).

Key to the Japanese Species

1. Posterior tibiae presenting 3 internal spines; pronotum moderate in length, less than  $1\frac{1}{2}$  times as long as wide; elytra rather broad, speculum distinctly less than twice as long as wide, with two dividing veins less oblique; ovipositor straight ... .. *indicus* SAUSSURE
2. Posterior tibiae presenting more than 3 internal spines; pronotum comparatively long; elytra rather long, speculum comparatively long, with two dividing veins more oblique; ovipositor slightly curved upwards ... .. *longicauda* MATSUMURA

53. *Oecanthus indicus* SAUSSURE

Mél. Orth. VI, pp. 593 et 594 (1878).

Hab.: Formosa—Tainan (VI), Kankau (IV), Koshun (IV), Taito (II), Taihoku (VII), Shoka (VI), Sokutsu (IV); India; Java; Hainan.

54. *Oecanthus longicauda* MATSUMURA

Thous. Ins. Jap. I, p. 136, pl. VI, fig. 10, ♀ (1904).

Hab.: Japan—Sapporo (IX, X), Gifu (X), Tokyo (VI); Korea—Ges-seiji (IX).

Subfam. *PHALANGOPSIINÆ*

Genus *Homoeogryllus* DE GUÉR

Lefebvre, Voy. Abyssinie, VI, p. 335 (1847).

**55. *Homoeogryllus japonicus* DE HAAN**

Temminck, Verhandl. Orth., p. 236 (*Phalangopsis*) (1842).

*Phalangopsis albicornis* WALKER, Cat. Derm. Salt. B. M., I, p. 106 (1869).

Hab.: Japan—Iyo (VIII), Tokyo (VI), Gifu (IX); Formosa—Karenko (XII), Taihoku (VIII, XI), Koshun (XII); Java; India.

The insects living in Formosa have two generations in a year, but the *gryllids* introduced into Formosa from Tokyo only one. Also the species of both Formosa and Japan are morphologically differing as below:

**Japanese species**—Dividing veins of speculum 3; oblique veins always more than 5; ovipositor longer than posterior femora.

**Formosan species**—Dividing veins always 2; oblique veins almost always 5; ovipositor shorter than posterior femora. This may be a local variety.

Subfam. *PENTACENTRINÆ*

## Key to the Japanese Genera

1. Anterior tibiae perforated by only one tympanum; apical spurs of posterior tibiae 5 ... .. *Pentacentrus* SAUSSURE
2. Anterior tibiae perforated by a large tympanum on both the internal and external sides; apical spurs of posterior tibiae 6 ... .. *Parapentacentrus* nov.

Genus *Pentacentrus* SAUSSURE

Mél. Orth. VI, p. 539, pl. 17, fig. L (1878).

**56. *Pentacentrus formosanus* KARNY**

Suppl. Ent., IV, p. 70, ♂ (1915).

Hab.:—Formosa—Suisharyo (X), Arisan (X), Tamaru (IX).

Type in the Entomological Institute of Dahlem-Berlin, Germany.

Genus *Parapentacentrus* nov. (Fig. 15)

Somewhat allied to the genus *Pteroplistes* BRUNNER of Subfamily *Cacoplistinae*, but distinguished by non-ramose mediastinal vein and no speculum in elytra of male, as well as by distinctly spined posterior tibiae. From the genus *Pentacentrus* may easily be distinguished by the broad frontal rostrum, more or less depressed second tarsal joint, and two tympani of anterior tibiae, as well as by 6 spurs of posterior tibiae.

The new genus may be one of *Eneopterinae*, but it belongs to the subfamily *Pentacentrinae*, because the 2nd tarsal joint is not conspicuously cordiform and also the general morphology is nearly the same to the genus *Pentacentrus*. Although it may be placed into the subfamily *Cacoplistinae* by some

students; it is better to take it into *Pentacentrinae* than into that, as the wing-morphology is entirely the same to *Pentacentrus*.

This is also allied to the genus *Homalogryllus* CHOPARD, but differing in two tympani of anterior tibiae, in venation of elytra, etc.

Head a little wider than pronotum, somewhat depressed above; frontal rostrum short, slightly sloping, very slightly broader than the basal joint of antennae; face moderately convex; shorter than labrum. Maxillary palpi rather long and slender, but rather short and thick in the female; 3rd joint distinctly shorter than 4th; apical joint much longer than 3rd; apical joint of labial palpi as long as 3rd joint of maxillary palpi. Antennae inserted low, at the lower half of internal side of eye, longer than body but less than twice its length; first joint depressed, rather large. Eyes moderate in size, rather conspicuously projecting forwards, a little lengthened antero-posteriorly; ocelli very large, the lateral ones at base of the rostrum near the eye, the anterior one near the apex.

Pronotum flattened, wide, conspicuously broadened at the posterior marginal part, anterior margin slightly concave, posterior one slightly sinuated near the lateral margin; lateral lobes rather high, with inferior margin strongly convex, angles being rounded. Prosternal tubercles elyptical, rather conspicuously elevated; mesosternum broad, posterior margin straight but very slightly emarginated in the middle; metasternum rather long especially in the male, gradually narrowed behind, posterior margin strongly

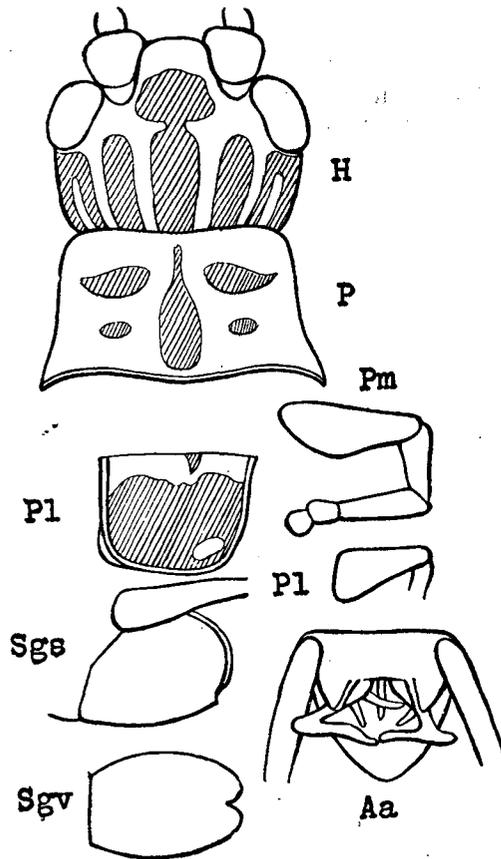


Fig. 15.

*Parapentacentrus formosonus* sp. nov.  $\times$  ca. 8 ( $\delta$ ).  
 H ..... head; P ..... pronotum; P1 ..... lateral lobe of pronotum; Sgs ..... subgenital plate seen from side; Sgv ..... subgenital plate seen from beneath; Aa ..... anal apex seen from above; Pm .... maxillary palpus; Pl ..... apical joint of labial palpus seen from external side,  $\times$  ca. 14.

rounded and very inconspicuously emarginated in the middle.

Abdomen moderate in length; subgenital plate of male large, comparatively short, with a broad lateral lobes, which are slightly extending behind and presenting rounded supero-posterior angle; subgenital plate of male with distinct lateral lobes, which are presenting a slender hooked process at their apices, the hook being transverse and strongly flattened; genitalia formed of 4 slender spine-like processes; ovipositor very narrow, longer than posterior tibiae, slightly curved downwards, the apical valves very short, the dorsal one being somewhat triangular; cerci long but never reaching to the apices of wings.

Legs rather long; anterior tibiae provided with a very large oblong internal and a small oblong tympanum, metatarsi rather thick and a little longer than the apical joint; posterior femora rather weakly swollen, with no special slender apical part, tibiae rather long, armed with two rows of spines at the apical half and also with a few denticles before the spined part; supero-external spur very slightly shorter than the inferior, which is about half as long as the intermediate; supero-internal spur a little longer than externo-intermediate one, but a little shorter than interno-intermediate one, interno-inferior spur as long as externo-inferior one; posterior metatarsi rather long, compressed, armed on each margin with 9 denticles, the apical spur very much unequal, the third joint slenderer.

Elytra long and narrow, exceeding the apex and abdomen; dorsal field with 4 longitudinal veins which are oblique and parallel, in the male the first one at the posterior  $2\frac{1}{3}$  and the 4th near the base furcate, in the female the 4th vein only furcate near the base, discoidal vein with two branches which are parallel to the longitudinal veins, transverse veinlets rather numerous, forming a rather irregular reticulation; lateral field with 4 longitudinal veins besides the mediastinal vein, transverse veinlets rather numerous, forming rather small and regular areolae. Wings extending conspicuously beyond the elytra.

Type: *Parapentacentrus formosanus*.

**57. *Parapentacentrus formosanus* sp. nov.**

Medium size, yellowish brown, somewhat depressed. Head ferrugineous, shining, on dorsum with 3 pairs of yellowish stripes, the external pair of which is very fine and is not reaching to the posterior margin of eye, the others are conspicuous and are extending to the same coloured band, the latter from eye to eye being interrupted in the middle; occiput moderately convex, with a yellowish narrow band between the interior pair of stripes; frontal rostrum yellowish at the apex where is moderately narrowed; clypeus yellowish brown to dark brown, mouth-part dark brown to black; palpi brown; antennae dark brown, 2 basal joint light yellow. Pronotum yellowish, with a pair of large crescent markings, a large pyriform median spot and a pair of small round

spots castaneous; lateral lobes blackish castaneous, the rather broad irregular superior band pale yellowish, a small irregular spot in the anterior angle reddish brown. Abdomen rufous-ferruginous, sternites yellowish. Legs yellowish, presenting an ill-defined dark brown ring near the apex of femora and two inconspicuous brownish rings on tibiae, but those rings on the posterior legs very inconspicuous excepting the basal ring of tibiae; posterior femora obliquely striated with brown at the external side.

Elytra pale yellowish brown, with the lateral field brown to dark brown; wings pale yellowish brown; cerci yellowish brown, gradually darkened towards the tip; ovipositor pale castaneous.

Length: Body ♂ 14.5 mm, ♀ 14-15 mm; pronotum ♂ 2 mm, ♀ 2.1-2.2 mm; elytra ♂ 13.5 mm, ♀ 15-16 mm; wings ♀ 18 mm, ♀ 19-20 mm; post. femora ♂ 8.5 mm, ♀ 8.5-8.8 mm; post. tibiae ♂ 6.2 mm, ♀ 6.7 mm; ovipositor 10-10.5 mm.

Hab.: Formosa—Arisan (IV), Musha (V, VI).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

#### Subfam. *TRIGONIDIINÆ*

##### Key to the Japanese Genera

1. Anterior tibiae provided with tympanum.
2. Elytra of male presenting speculum; pronotum distinctly narrowed anteriorly.
3. Elytra of male narrow, presenting long speculum.
  4. Pronotum with rounded anterior margin; elytra of female presenting false veins between the principal ones; posterior femora with distinct slender part . . . . . *Homooxipha* SAUSSURE
  - 4<sup>1</sup>. Pronotum with rather straight anterior margin; elytra of female wanting false veins; posterior femora regularly swollen . . . . . *Anaxipha* SAUSSURE
  - 3<sup>2</sup>. Elytra of male broad, presenting broad speculum; wings never presented; posterior femora with distinct slender apical part . . . . . *Paratrigonidium* BRUNNER
- 2<sup>2</sup>. Elytra of male wanting speculum, of female not densely pubescent and provided with bare longitudinal veins; pronotum rather parallel-sided . . . . . *Metioche* SATL
- 1<sup>1</sup>. Anterior tibiae wanting tympanum; elytra of both the sexes corneous or coriaceous, wanting speculum . . . . . *Trigonidium* RAMBUR

#### Genus *Trigonidium* RAMBUR

Faune Andal. II, p. 39 (1839).

*Alamia* SERVILLE, Ins. Orth., p. 350 (1839).

*Ceratinopterus* FIEBER, Lotos, III, p. 232 (1853).

##### Key to the Japanese Species

1. Femora unicolourous, with no blackish genicular part; subgenital plate of male concave behind.
2. Elytra corneous; head, pronotum and elytra strongly shining, black, the latter presenting numerous

- longitudinal striations; two pairs of the anterior tibiae conspicuously blackish brown to black; male genitalia without long and slender latero-apical appendages ... .. *cicindeloides* RAMBUR
- 2<sup>2</sup>. Elytra coriaceous; head, pronotum and elytra moderately shining black, the latter very often becoming paler posteriorly, pronotum in some specimens provided with a pale lateral stripe, which is rarely extending to the head; legs unicolourously yellowish; male-genitalia presenting a slender and long latero-apical appendage, which is distinctly serrated at the anterior margin... ..
- . . . . . *haanii* SAUSSURE
- 1<sup>1</sup>. Femora with a distinct blackish genicular band, the posterior one presenting a very broad sub-apical blackish band on the superior half; tibiae blackish brown; elytra coriaceous; head, pronotum and elytra blackish, somewhat shining, the latter being yellowish at the postero-marginal border; subgenital plate of male with a short but distinct median process on the posterior margin; male-genitalia presenting a very short simple spine-like latero-apical appendage ... ..
- ... .. *ogasawarensis* sp. nov.

**58. *Trigonidium cicindeloides* RAMBUR**

Faune Andal. II, p. 39 (1839).

*Trigonidium paludicola* SERVILLE, Ins. Orth., p. 351 (1839).

Hab.: Formosa—Tainan (X), Takao (XI), Taito (II, III), Shinten (VIII), Tobo (VIII), Taihoku (VI); Japan—Tokyo (VI); South Europe; North and West Africa; Ceylon; India; Burma; South China.

**59. *Trigonidium haanii* SAUSSURE**

Mél. Orth., VI, pp. 603 et 606 (1878).

Hab.: Japan—Tokusa (VIII); Riukiu—Okinawa (VIII), Yayeyama (XI); Formosa—Takao (XI), Taito (II, III), Kotosho (IV, VIII); Java.

**60. *Trigonidium ogarawarensis* sp. nov. (Fig. 16)**

Closely allied to the preceding species, but it is easily distinguished from *haanii* by several characters noted in the specific key.

♂. Rather dull-coloured species. Head broader than pronotum, but rather slenderer comparing with two preceding ones, depressed above, blackish brown; frontal rostrum very slightly broader than the first antennal joint, black, with a broad yellowish median stripe which is divided into two lateral ones by a distinct brownish median stripe, the latter being continuous to dark coloured portion of the dorsum; base of antennae and interior side of eye yellowish; face castaneous, shining, with clypeus paler. Palpi yellowish, with apical joint brownish to blackish; apical joint of maxillary palpi distinctly longer than the 3rd, triangular, flattened, apical joint of labial palpi subtriangular, flattened, shorter than the 4th of maxillary palpi. Antennae brown, with two basal joints black and shining; basal joint moderately depressed, longer than wide, slenderer apically. Eyes large, conspicuously projecting, round; ocelli round, anterior one on the apex of frontal rostrum, lateral ones near the angle between the eye and antennal base.

Pronotum broad, parallel-sided, the margins of both the anterior and posterior ones slightly convex, densely pubescent; lateral lobes narrowed below, inferior margin straight and horizontal, the anterior angle being broad and posterior one somewhat rounded.

Abdomen blackish; subgenital plate of male very broad, the lateral part conspicuously curved above, posterior margin being yellow and presenting a small triangular median process; cerci yellowish; male genitalia presenting a narrow apical process at the lateral margins, the process being more or less curved inwards; ovipositor about as long as abdomen, strongly curved upwards, the apical valves minutely serrated.

Legs very long, yellowish, with tibiae and second tarsal joint dark brown; anterior and posterior femora rather thick, presenting a broad dark brown apical ring which is interrupted beneath, the metatarsi slender and with a narrow dark brown apical ring; posterior femora rather weakly swollen, with a very short slender apical part, presenting a very broad ill-defined dark brown band on the dorsal half just after the middle, tibiae provided with usual spines and spurs, metatarsi slender, as long as the following two together, with a narrow dark brown apical ring.

Elytra coriaceous, blackish brown at the median dorsal part and apex of abdomen; dorsal field presenting 4 parallel longitudinal veins, transverse veinlets very few and inconspicuous; lateral field entirely black, presenting 4 parallel longitudinal veins besides the mediastinal vein. Elytra of female presenting inconspicuous false longitudinal veins.

Length: Body ♂ 4.8-5 mm, ♀ 5.9 mm; pronotum ♂ 1.3-1.5 mm, ♀ 1.4 mm; elytra ♂ 2.5-3 mm, ♀ 3 mm; post. femora ♂ 5.5 mm, ♀ 5.5 mm; post. tibiae ♂ 5.4 mm, ♀ 5.4 mm; ovipositor 2 mm.

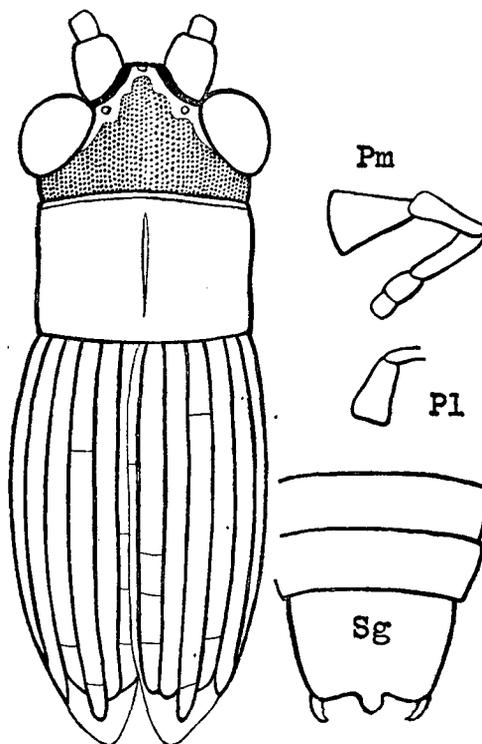


Fig. 16.

*Trigonidium ogasawarenis* sp. nov. ♂ × ca. 14.  
Pm ..... maxillary palpus; Pl ..... labial palpus;  
Sg ..... subgenital plate. × ca. 20.

Hab. : Japan—Ogasawara (Bonin Islands) (VIII).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

Genus *Metioche* STAL

Oefv. Vet.-Akad. Förh., XXXIV, (1), p. 48 (1877).

*Piestoxiphus* SAUSSURE, Mém. Soc. Geneve, XXV, p. 467 (1878).

Key to the Japanese Species

1. Subgenital plate of female distinctly but shortly emarginated behind, of male presenting a broad, very short yellowish lobe behind; latero-apical spine of male-genitalia armed with two distant minute denticles besides the apical one ... .. *insularis* SAUSSURE
2. Subgenital plate of female shortly splitted behind, of male presenting an elliptical process behind; latero-apical spine of the male-genitalia armed with 3 somewhat separated rather thick but minute denticles besides the apical one . . . . . *kotoshoensis* sp. nov.

61. *Metioche insularis* SAUSSURE

Mém. Soc. Geneve, XXV, p. 470 (*Piestoxiphus*) (1878).

*Cyrtoxipha ritsemæ* KARNY (nec SAUSSURE), Suppl. Ent., IV, p. 69 (1915).

Three formosan specimens determined by KARNY as *ritsemæ*, preserved in the Entomological Institute of Dablen-Berlin, are *insularis* of SAUSSURE without doubt.

62. *Metioche kotoshoensis* sp. nov. (Fig. 17)

Slender, blackish, with all the appendages yellow.

♂. Head black, shining, conspicuously broader than pronotum, depressed above; frontal rostrum moderately sloping, a little broader than the basal joint of antennae; clypeus castaneous, distinctly elevated; eyes large, round, conspicuously projecting; ocelli very small, the anterior one being on the apex of frontal rostrum. Palpi rather short and thick, apical joint black but yellowish at the base, basal joint (or joints) pale castaneous; apical joint of maxillary palpi triangularly flattened, a little longer than the 3rd, the latter being distinctly longer than the 4th; apical joint of labial palpi subtriangular, nearly as long as the 4th of maxillary palpi, the 2nd as long as the 2nd joint of the latter. Antennae with 2 basal joints black, shining, the first one longer than wide.

Pronotum wider than long, broadened behind, anterior margin very slightly convex, posterior margin very slightly angulated, white pubescent; lateral lobes horizontal, the anterior margin conspicuously oblique backwards, the posterior lobe large.

Abdomen black, rather cylindrical; subgenital plate of male rather long, posterior margin distinctly emarginated and presenting a narrow median process,

of female rather broad and shortly splitted in the middle of posterior margin; latero-apical process of male-genitalia long and slender, curved inwards, at the apical half of interno-posterior margin armed with 3 minute denticles besides of the apical one; ovipositor strongly curved upwards, the serration of apical valves distinct, especially on the dorsal valves.

Anterior tibiae provided with a large oval internal and a rather small elliptical external tympanum. Posterior legs are lost in the specimens.

Elytra long and slender, reaching to the apex of abdomen; in the male blackish but along the inner margin pale yellowish, venation rather simple, 3 of 5 longitudinal veins on dorsum being oblique and moderately reticulated, lateral field entirely blackish and presenting only 3 longitudinal veins besides the mediastinal vein, not reticulated; in the female yellowish, venation simpler, one of 5 longitudinal veins being oblique, transverse veinlets very few, lateral field somewhat brownish at the superior half, its venation as in the male.

Length: Body ♂ 4.8 mm, ♀ 4.5 mm; pronotum ♂ 0.9 mm, ♀ 0.9 mm; elytra ♂ 3.2 mm, ♀ 3 mm; ovipositor 1.4 mm.

Hab.: Formosa—Kotosho (IV).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

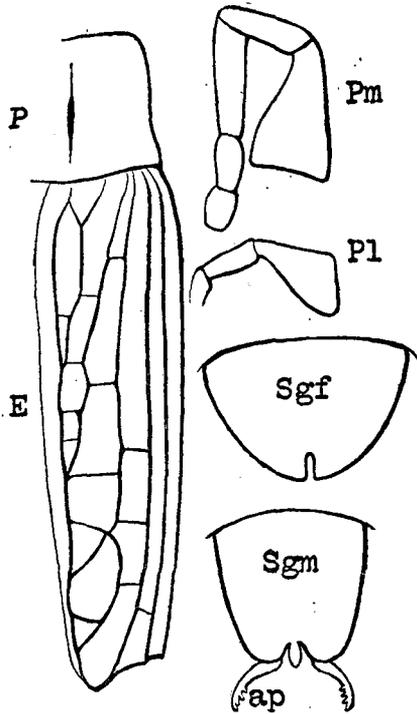


Fig. 17.

*Metioche kotoshoensis* sp. nov.

P ..... pronotum; E ..... elytra.  $\times$  ca. 14.  
Pm ..... maxillary palpus; Pl ..... labial  
palpus; Sgf ..... Subgenital plate ♀; Sgm ...  
subgenital plate ♂.  $\times$  ca. 30.

Genus *Paratrigonidium* BRUNNER VON WATTENWYLL

Ann. Mus. Genova, XXXIII, p. 208 (1893).

Key to the Japanese Species

1. Posterior femora presenting two dark longitudinal stripes at the external face; subgenital plate of the male distinctly emarginated and provided with a small subtriangular median lobe behind;

- elytra blackish at the lateral field, in the male blackish maculated on the tympanal field; ovipositor long, conspicuously serrated above ... .. *bifasciatum* SHIRAKI
- 1<sup>1</sup>. Posterior femora presenting no stripe; elytra nearly unicolourously yellowish to brownish; subgenital plate of the male without process; ovipositor short, serration of the apical valves rather inconspicuous.
2. Subgenital plate of the male longer than wide, more or less rounded behind; head and pronotum blackish .. .. . *striatum* SHIRAKI
- 2<sup>2</sup>. Subgenital plate of the male broad, rather transverse, truncated behind; head and pronotum yellowish ... .. . *transversum* sp. nov.

**63. *Paratrigonidium bifasciatum* SHIRAKI**

Monogr. Gryll. Formosa, p. 108, pl. II, fig. 4 (1911).

*Paratrigonidium majusculum* KARNY, Suppl. Ent., IV, p. 69 (1915).

Hab.: Formosa—Ako (XI), Arisan (X), Naifunpo (IX), Taipin (IX), Kobayashi (VIII); Japan—Gifu (VIII), Takasago; Korea.

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

**64. *Paratrigonidium striatum* SHIRAKI**

Monogr. Gryll. Formosa, p. 110, pl. II, fig. 8 (1911).

Hab.: Japan—Tokusa (VII); Formosa—Musha (V, VI), Shinchiku (VII), Arisan (VI), Taito (II, III), Horisha (V).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

**65. *Paratrigonidium transversum* sp. nov.**

Rather small, light testaceous, with elytra comparatively narrow and subgenital plate small.

♂. Head a little broader than pronotum, somewhat depressed above, with occiput rather strongly swollen, pale rufous-testaceous, yellowish pubescent; frontal rostrum nearly as wide as the basal joint of antenna at the apex, sloping; face rather dark, moderately flattened; clypeus moderately elevated, rufous. Eyes rather small, round, projecting; ocelli rudimental. Palpi pale yellowish, with the tip brown; apical joint of maxillary palpi triangular, nearly as long as the 2nd and 3rd joints together, the 4th conspicuously shorter than the preceding one; apical joint of the labial palpi subtriangular, slightly flattened, nearly as long as the 3rd of maxillary palpi.

Pronotum testaceous, somewhat rufous, rather transverse, narrowed apically, with the anterior margin slightly convex, the posterior margin straight, yellowish pubescent; lateral lobes horizontal, rather low, the anterior margin conspicuously oblique, its angle being rounded, the posterior angle rather rounded.

Abdomen short, always shorter than the head and thorax together, dark testaceous; subgenital plate of the male rather transverse, narrowed apically, rather

slightly curved above, the posterior margin straight, of female somewhat triangular, the apex distinctly but shortly splitted; in the female sternite just before the subgenital plate very large, presenting a moderately large, round, not pubescent, shining brown area along the middle of posterior margin; ovipositor usual.

Legs slender, yellowish, with two apical joints of tarsi blackish brown, excepting the 3rd joint of posterior tarsi yellowish; anterior tibiae as long as the femora, perforated by a large oblong external tympanum; posterior femora with a rather distinct slender apical part, brownish at the supero-external face, tibiae a little shorter than the femora, armed with 3 long internal and 3 short external spines; external spurs minute, supero-internal one very long.

Elytra of the male light testaceous, rather narrow, speculum a little longer than wide, longitudinal veins of the lateral field 3, of which the inferior one is rather inconspicuous and short; of the female light yellow, 4 longitudinal veins on the dorsal field, transverse veinlets rather numerous but very inconspicuous, forming small, quadrate, rather regular areolae, lateral field transparent, provided with 4 longitudinal veins, of which the 3rd one is very short, strongly curved upwards and reaching to the middle of the second one. Wings wanting.

Length: Body ♂ 5 mm, ♀ 4.8 mm; pronotum ♂ 1.2 mm, ♀ 1.3 mm; elytra ♂ 3.6 mm, ♀ 3.3 mm; post. femora ♂ 5 mm, ♀ 4.9 mm; post. tibiae ♂ 4.9 mm, ♀ 4.8 mm; ovipositor 3.8 mm.

Hab.: Formosa—Kotosho (VIII).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

#### Genus *Anaxipha* SAUSSURE

Miss. Mex. Orth., p. 370 (1874).

*Anaxiphus* SAUSSURE, Mel. Orth. VI, p. 615 (1878).

#### 66. *Anaxipha pallidula* MATSUMURA

Schäd. u. Nützl. Ins. Zuckerr. Formosas, p. 10, pl. V, fig. 2 (*Anaxiphus pallidulus*) (1910).

*Cyrtoxiphus pallidulus* SHIRAKI, Monogr. Gryll. Formosa, p. 114 (1911).

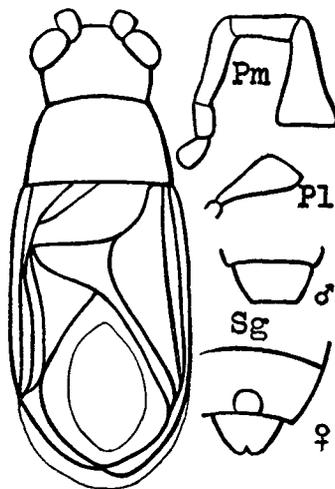


Fig. 18.

*Paratrignidium transversum* sp. nov.  
 × ca. 8, excepting Pm and Pl × ca. 20.  
 Pm ..... maxillary palpus; Pl .....  
 labial palpus; Sg .... subgenital plate.

Hab.: Formosa.

Genus *Homoeoxipha* SAUSSURE

Miss. Mex. Orth., p. 363 (1874).

*Homoeoxiphus* SAUSSURE, Mél. Orth., VI, p. 607, pl. 17, Fig. XLVIII (1878).

67. *Homoeoxipha lycoides* WALKER

Cat. Derm. Salt. B. M., I, p. 71 (*Phyllopalpus*) (1869).

*Homoeoxiphus histrio* SAUSSURE, Mél. Orth., VI, p. 607 (1878).

*Cyrtoxiphus ritsemæ* SAUSSURE, Mél. Orth., VI, p. 625 (1878).

*Cyrtoxipha pallidula* KARNY (nec MATS.), Suppl. Ent., IV, p. 69 (1915).

Hab.: Formosa—Taihoku (XI), Shinten (VIII), Rikiriki (III), Arisan (X), Urai (XI), Tonpo (IV), Naifunpo (IX), Rinkiho (VI), Tabo (VIII), Taiheizan (VIII), Taito (II), Arikan; Japan—Gifu (IX), Kyoto (VIII); Riukiu—Yayeyama (XI); Java; Borneo; Hainan; Ceylon.

KARNY's *pallidula* preserved in the Entomological Institute of Dahlem-Berlin is a winged species.

Subfam. *ENEOPTERINÆ*

Key to the Japanese Genera

1. Median ocellus distinct at the upper side of frontal rostrum, not transverse, round.
2. Frontal rostrum longer than wide, parallel-sided; elytra of the male with a tympanal field, but speculum ill-defined; wings conspicuous... .. *Cardiodactylus* SAUSSURE
- 2<sup>2</sup>. Frontal rostrum wider than long, slenderer towards the apex; elytra rudimental, without venation, or abbreviated with distinct venation; wings wanting ... .. *Lebinthus* STÅL
- 1<sup>1</sup>. Median ocellus transverse at just below the apical margin of frontal rostrum. Elytra and wings well-developed, the former presenting a well-defined speculum, which is provided with only one curved dividing vein, two oblique veins parallel; legs slender, long; pronotum transverse, distinctly carinate at the lateral margins... .. *Dionymus* BRUNNER VON WATT.

Genus *Dionymus* BRUNNER VON WATTENWYLL

Ann. Mus. Genova, XXXIII, p. 213 (1893).

68. *Dionymus marmoratus* DE HAAN

Temminck, Verhandel. Orth., p. 235 (*Phalangopsis*) (1842).

*Heterotrypus unipartitus* KARNY, Suppl. Ent., IV, p. 67 (1915).

Hab.: Japan—Tokyo, Gifu, Kyoto; Riukiu—Okinawa; Formosa—Takao, Kagi.

Type of KARNY in the Entomological Institute of Dahlem-Berlin.

Genus *Lebinthus* STÅL

Oefv. Vet.-Akad. Förh., XXXIV (1), p. 50 (1877).

*Paraenopterus* SAUSSURE, Mém. Orth., VI, p. 673, Fig. LIX (1878).**69. *Lebinthus striolatus* BRUNNER VON WATTENWYLL**Abhandl. Senchenb. Ges., XXIV, p. 279 (*Paraenopterus*) (1898).

This species presents a very small elytra beneath the pronotum.

Hab.: Formosa—Taihanroku (V); Amboina.

Genus *Cardiodactylus* SAUSSURE

Mém. Orth., VI, p. 657, Fig. LV (1878).

**70. *Cardiodactylus novae-guineae* DE HAAN**Temminck, Verhandl. Orth., p. 233 (*Platydictylus*) (1842).*Grylloides guttulus* MATSUMURA, Thous. Ins. Jap. Add., I, p. 36, pl. V, fig. 12 (1913).

Hab.: Formosa—Taihanroku (V), Kotosho (VIII), Kashoto (X); Riukiu—Amami-Oshima (VII); New Guinea; Borneo; Java; North Australia.

Subfam. *ITARINÆ*

## Key to the Japanese Genera

1. Legs conspicuously elongate; posterior tibiae about as long as the femora, supero-internal spur longer than the intermediate one; tympanum of both the sides of anterior tibiae round, never conchate; speculum of elytra presenting two or three dividing veins... .. *Heterotrypus* SAUSSURE
2. Legs short; posterior tibiae much shorter than the femora, supero-internal spur distinctly shorter than the intermediate one; internal tympanum of the anterior tibiae conchate, very narrowly opened; speculum of elytra presenting only one dividing vein ... .. *Itara* WALKER

Genus *Heterotrypus* SAUSSURE

Mém. Orth., VI, p. 677, Figs. XXXVIII, LI (1878).

**71. *Heterotrypus buqueti* SERVILLE**Ins. Orth., p. 367 (*Platydictylus*) (1839).

This species is known as to be found in Japan, but it is very doubtful.

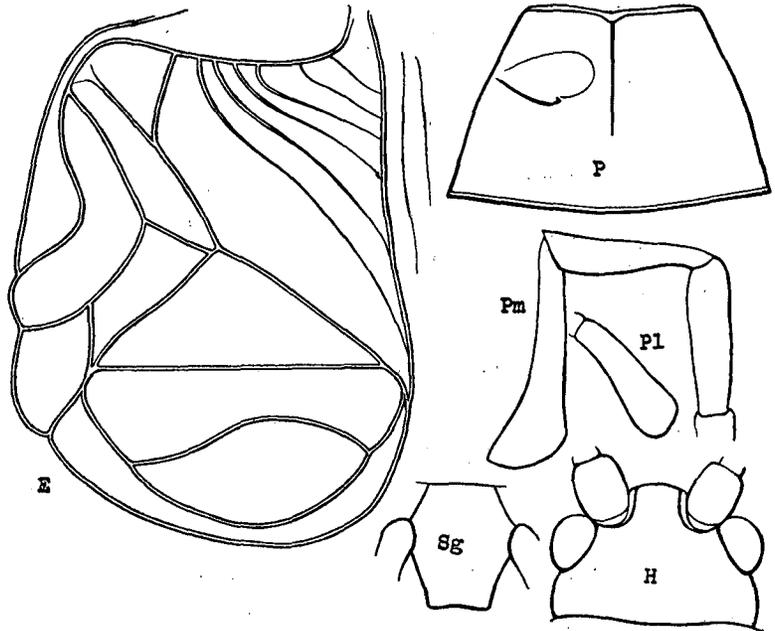
**72. *Heterotrypus kotoshoensis* sp. nov. (Fig. 19)**

Differing from *buqueti* SERVILLE by less curved posterior margin of pronotum of male, denticulation of the posterior tibiae, comparatively broad and rather transverse speculum of elytra, etc.

Fig. 19.

*Heterotryptus kotshoensis* sp. nov. ♂. × ca. 4;  
 excepting Pl and Pm × ca. 20.

E ..... middle part of elytron; P ..... pronotum; H ..... head;  
 Sg ..... subgenital plate; Pm ..... maxillary palpus; Pl .....  
 labial palpus.



♂. Brown, with pronotum blackish. Head castaneous, as wide as the anterior margin of pronotum, short, convex and golden pubescent above; frontal rostrum as wide as the basal joint of antenna, parallel-sided, depressed and sloping above, anterior margin slightly convex; face when seen from side straight and oblique; posterior part pale castaneous, shining. Eyes strongly globular; ocelli very small, anterior one just above the anterior margin of frontal rostrum rounded. Palpi dark brown, rather slender; apical joint of the maxillary palpi about as long as the 2nd and 3rd together, clavate; apical joints of labial palpi moderately thickened at the tips, distinctly shorter than the 4th of maxillary one, or as long as the preceding two united. Antennae castaneous, with the basal joint darker, about 5 times as long as body; 1st joint more or less depressed, a little longer than wide.

Pronotum blackish, with posterior marginal border rufous, conspicuously broadened towards the base, anterior margin very slightly convex, the side more or less swollen, densely covered with a yellowish pubescence; median suture on the anterior  $\frac{2}{3}$  rather distinct; crescent markings rather large, yellowish brown but ill-defined; lateral lobes blackish, with an inconspicuous rufous spot in the anterior angle, inferior margin straight and strongly oblique backwards, angles rounded. Pronotum triangularly emarginate behind; mesosternum long and narrow, gradually broadened towards the base, posterior margin distinctly emarginate; metasternum presenting very short, somewhat triangular lateral lobes.

Abdomen brown, densely covered with a golden-yellow pubescence; subgenital plate of male long, with the posterior margin slightly concave; cerci yellowish brown, as long as elytra.

Legs lost in the specimens. Elytra rather broad, testaceous; speculum broader than long, presenting two dividing veins, of which the first one from the internal angle to just above the external angle is straight, the second vein being strongly curved forwards, anterior angle rectangular, posterior margin evenly convex; diagonal vein short, furcate just before its middle: cords 2, the first one angulate, presenting two veinlets, of which the anterior one to the anterior angle of speculum is straight with the externo-anterior margin of mirror, the posterior veinlet being perpendicular and connecting with the internal angle of speculum; 6 oblique veins distinct, 4 of which are long and slightly divergent; apical field short, with four sectors; lateral field with numerous, almost perpendicular branches of mediastinal vein. Wings reaching to the apex of elytra, presenting dark brown longitudinal veins.

♀. Pronotum entirely black, slightly narrowing in front, with posterior margin slightly sinuate. Elytra dark reddish brown, a little widening towards the middle, then rather strongly narrowing to the apex; surface inconspicuously pubescent; dorsal field with 3 a little oblique, not parallel, rather close free veins and 5 branches of discoidal vein, the branches being much more apart and more oblique, transverse veinlets numerous and rather regular; lateral field with 8 oblique, parallel branches of straight mediastinal vein and also 4 free oblique veins. Wings a little exceeding beyond the elytra. Ovipositor dark castaneous, gradually narrowed towards the tip, very slightly curved upwards, apical valves very narrow, divided on the basal third by two deep, transverse furrows. Legs brown, anterior two pairs being darker, yellowish pubescent. Anterior tibiae weakly thickened at both the ends, perforated on either side, the internal tympanum being larger; metatarsi conspicuously shorter than the 3rd joint. Posterior femora rather strongly dilated, the slender apical part being moderate in length; tibiae armed with 4 long spines on each margin, besides denticulated as follows: external margin 9. 7. 5. 4. 3; internal margin 10. 2. 2. 1. 0; supero-internal spur conspicuously longer than the metatarsus, supero-external one longer than the inferior; metatarsi with a single row of 5 denticles.

Length: Body ♂ 13 mm, ♀ 19 mm; pronotum ♀ 4.2 mm, ♀ 4.5 mm; elytra ♂ 15 mm, ♀ 15 mm; post. femora ♂ 15 mm, ♀ 16 mm, post. tibiae ♀ 15.7 mm; ovipositor 7 mm.

Hab.: Formosa—Kotosho (VIII).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

Genus *Itara* WALKER

Cat. Derm. Salt. B. M., I, p. 64 (1869).

*Phorminctor* SAUSSURE, Mém. Orth., VI, p. 689, Fig. LII (1878).**73. *Itara microcephalus* DE HAAN**

Temminck, Verhandel. Orth., p. 236 (1842).

It is very doubtful that this species lives in Japan.

Subfam. *PODOSCYRTINÆ*

## Key to the Japanese Genera

1. Elytra of male presenting a mirror.
  2. Anterior tibiae fusiformly dilated ... .. *Mnesibulus* STÅL
  3. Head and pronotum shining, almost bare; pronotum rather long, almost always a little wider than long, strongly constricted forwards ... .. Subg. *Mnesibulus* STÅL
  - 3<sup>3</sup>. Head and pronotum not shining, conspicuously pubescent; pronotum conspicuously wider than long ... .. Subg. *Promnesibulus* nov. (Type *okunii* sp. nov.)
  - 2<sup>2</sup>. Anterior tibiae more or less dilated at bases.
    3. Pronotum distinctly wider than long, the anterior margin not rounded, the disk without a median foveola... .. *madasumma* WALKER
    - 3<sup>3</sup>. Pronotum distinctly longer than wide, the anterior margin conspicuously rounded, the disk with a distinct median foveola ... .. *Pseudomadasumma* nov.
- 1<sup>1</sup>. Elytra of male presenting no mirror,
  2. Anterior tibiae perforated on either side.
    3. Body very slender; head large, depressed above; ovipositor depressed at the base... .. *Euscirtus* DE GUÉR
    - 3<sup>3</sup>. Body not very slender; head globular, conspicuously convex above; ovipositor compressed ... .. *Podoscirtus* DE GUÉR
  - 2<sup>2</sup>. Anterior tibiae perforated with an internal tympanum only ... .. *Aphononorphus* REHN

Genus *Mnesibulus* STÅL

Oefv. Vet.-Akad. Förh. XXXIV (I), p. 50 (1877).

**74. *Mnesibulus (Promnesibulus) okunii* sp. nov. (Fig. 20)**

Slender, pale testaceous, either sex quite similar in shape.

♂. Head testaceous, wider than pronotum, depressed above, yellowish pubescent; vertex slightly sloping, conspicuously depressed, rugulose, presenting distinct a Y-shaped epicranial carina, anterior branches of which are extending to just front of the lateral ocelli; frontal rostrum about as wide as the basal joint of antennae, parallel-sided but the apex more or less narrowed, provided with conspicuous lateral carinae, rugulose between the carinae; face smooth, moderately elevated, facial shield rather broad, with a pair of longitudinal foveolae just below the superior margin; clypeus so strongly elevated that the clypeo-facial

border is strongly furrowed transversely; occiput moderately rounded, smooth, presenting a rather distinct median suture which is root of stem of epicranial carina. Eyes somewhat oval, obliquely lengthened antero-posteriorly when seen from side; ocelli large, in a triangle, lateral ones obliquely oblong, anterior one transverse. Antennae yellowish, with numerous, indistinct, ill-defined brown rings; first joint narrowed in the tip, a little longer than wide. Palpi yellowish; apical joint of maxillary palpi moderately flattened, a little shorter than the 3rd, the apex very obliquely truncate, 4th joint very short; apical joint of labial palpi rather slender, slightly thickened towards the tip, as long as the preceding two together or a little longer than the 4th of maxillary palpi.

Pronotum pale testaceous, yellowish pubescent, furnished with very short bristly hairs on either margin, wider than long, slightly broadened behind, with the anterior margin straight and posterior margin somewhat sinuate; crescent markings very large; lateral lobes horizontal, a little longer than high, the inferior margin evenly convex with both the angles rounded, the posterior lobe very small; posterior lobe of mesosternum short, transversely subquadrate, posterior margin very shortly splitted in the middle with lateral angles slightly rounded; mesosternum strongly narrowed behind, with rounded posterior margin which is triangularly emarginated but very shortly.

Abdomen cylindrical; 2nd tergite presenting two large transverse matt brown spots; 4th tergite provided with a broad longitudinal median fold at the posterior half, the fold furnished with numerous yellowish shaggy hairs at sides of the narrow median ridge; 5th tergite with a large subquadrate hole at the anterior margin and a rather broad fold from the posterior margin of the hole to the posterior margin of the sternite, anterior margin of the fold (or posterior margin of the hole) furnished with a tuft of castaneous bristles, the fold distinctly furrowed above, this hole may be a sensory organ; 8th tergite shorter than 7th, triangularly emarginate behind; 9th tergite or supra-anal plate very broad, with a very broad round posterior lobe, roundly furrowed above, a shallow excavation extending from the base of sternite to the posterior lobe and presenting a distinct curved carina which is parallel to the posterior margin of the lobe; subgenital plate expanding behind, as long as the preceding two sternites together, the posterior lobe rather round, its basal margin distinctly carinate, the carina being concave, middle of the posterior margin very slightly pointed.

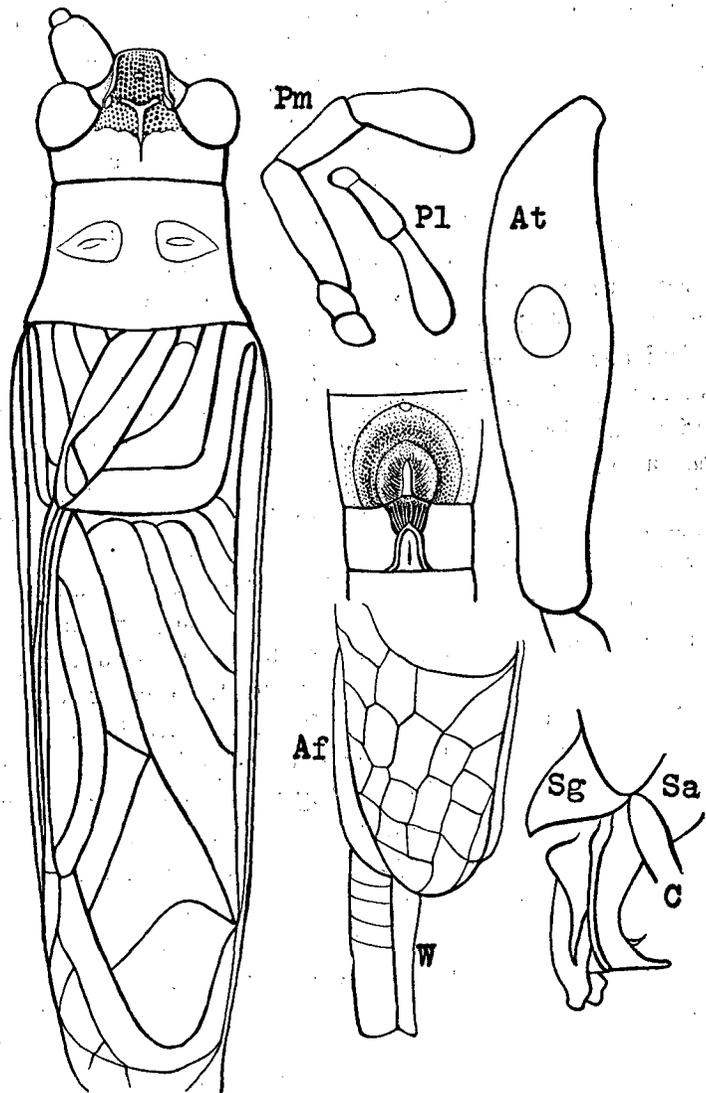
Legs rather short, yellowish, yellow pubescent; anterior tibiae fusiform, shorter or very slightly slenderer than the femora, perforated with a rather large round external and a very long internal tympanum, the latter being partly conchate; anterior metatarsi very short, a little longer than wide, gradually thickened towards the tip, somewhat conical, second joint providing long apical lamellae. Posterior femora moderately and regularly swollen, without distinct

slender apical part; tibiae inconspicuously shorter than femora, slender, armed with 5 or rarely 6 short internal and 4 external much shorter spines, denticles on either margin rather conspicuous and numerous; metatarsi short but a little longer than the 3rd joint, rather broad, slightly compressed, armed with one spine on either margin of apex and also with two external denticles; external spurs very short, nearly equal in length, but the intermediate one a little longer than others; internal spurs long excepting the inferior one which is as long

Fig. 20.

*Promesitulus okemii* sp. nov. ♂; x ca. 8.

Af ..... apical field of elytron; W ..... wing; IV and V ..... tergites; At ..... anterior tibiae seen from external face, x ca. 14; Sg ..... subgenital plate; Sa ..... supra-anal plate; C ..... cerci; G ..... genitalia, x ca. 14; Pm ..... maxillary palpus; Pl ..... labial palpus, x ca. 20.



as the interno-intermediate spur, superior one much longer than the intermediate but distinctly shorter than the metatarsus; posterior lobes of the 2nd tarsal joint long and rather lamellate, the tip being armed with strongly chitinized quadrate tooth.

Elytra very long and slender, yellowish; diagonal vein long, nearly straight, very shortly furcate at the base; speculum distinctly longer than wide, the dividing vein one and strongly curved as in figure 20; 3 oblique veins distinct, nearly parallel, their bases roundly bent inwardly and then connected each other, two rather inconspicuous ones very short; cords parallel, veinlet of the first one oblique to the anterior angle of mirror; apical field moderate long, presenting 5 oblique longitudinal veins which are reticulated with rather a few transverse veinlets. Extended part of wings short, shorter than the apical field of elytra.

♀. General shape and colour same with those of the male. Head with very inconspicuous epicranial carina. Pronotum conspicuously sinuate behind, so that the posterior margin is somewhat angulated in its middle. Elytra much longer, somewhat greyish, a little widening towards the middle, then rather weakly narrowing to the apex; surface very inconspicuously pubescent, but veins quite bare from it; dorsal field with three very little oblique, parallel, rather close free veins and 5 branches of the discoidal vein, which are similarly distant and parallel to free veins; transverse veinlets numerous and rather regular; lateral field with mediastinal vein curved, bearing 8 parallel branches which are strongly oblique and more or less curved. Wings rather dark, the extended part being longer than that in the male. Ovipositor pale castaneous, much shorter than the posterior tibia, straight, the apical valves somewhat thickened and black, dorsal valves distinctly rugulose throughout the surface.

Length: Body ♂ 12 mm, ♀ 12 mm; pronotum ♂ 2.2 mm, ♀ 2.3 mm; 11.3 mm, ♀ 12.5 mm; wings ♂ 12 mm, ♀ 14 mm; post. femora ♂ 7 mm, ♀ 8 mm; post. tibiae ♂ 6.3 mm, ♀ 7 mm; ant. tibiae ♂ 2.3 mm, ♀ 2.9 mm; ovipositor 4.3 mm.

Hab.: Formosa—Kotosho (VIII, IV).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

#### Genus *Madasumma* WALKER

Cat. Derm. Salt. B. M., I, p. 64 (1869).

#### 75. *Madasumma hibinonis* MATSUMURA (Fig. 21)

Ōyo-konchugaku, p. 279 (1919); Omoshiroki-chukai-no Kyōzai, p. 89, pl. 8, ff. 5, 6 (1928).

Medium size, pale greenish. Head somewhat pubescent, very low, a little

broader than the anterior margin of pronotum, strongly depressed above, excepting the occiput rounded; frontal rostrum very narrow, somewhat furrowed above, rather parallel-sided; vertex slightly furrowed, rugulose; face convex but clypeo-facial area distinctly furrowed transversely. Eyes comparatively small, a little lengthened antero-posteriorly, more or less projecting; ocelli large, but rather widely separated, the anterior one at the base of frontal rostrum oblong, lateral ones along the internal corner of eyes. Antennae about  $2\frac{1}{2}$  as long as body, yellowish brown, with very irregular numerous blackish rings. Palpi yellowish, rather short; apical joint of maxillary palpi rather strongly enlarged at apex, as long as the 3rd, 4th joint much shorter than the latter or a little shorter than the preceding two joints together; apical joint of labial palpi strongly enlarged at apex, nearly as long as the 4th joint of maxillary palpus.

Pronotum a little shorter than width of the posterior margin, strongly depressed, with distinct broad lateral carinae yellowish, conspicuously narrowed towards the anterior margin which is slightly concave, posterior margin more or less angulate; surface not glabrous, with a pair of rather small crescent calosities and near the anterior margin three small rather indistinct calosities of which the median one is divided into two by a fine longitudinal sulcus continuous to the median suture; lateral lobes with a small black spot at in either superior angle, the inferior margin margin convex and slightly ascending forwards. Mesosternum provided with two longitudinal folds, which are rather pointed at the apex, just beneath these ridges there is a rather large triangular opening. Metasternum moderate in size, presenting small triangular postero-lateral lobes.

Abdomen unicolourously yellowish, gradually narrowed behind; supra-anal plate transverse, posterior margin so deeply emarginated than the plate, almost entirely separating into two triangular lateral lobes, which are far distant at their tips; subgenital plate very long, the posterior lobe being truncate behind, but very slightly emarginate in the middle; infero-anal plate distinctly expanded behind, the posterior margin rather deeply splitted in the middle; cerci very slender, hardly reaching to the tip of wings. Genitalia very large, presenting a very large strongly curved superior hooks and a pair of slightly waved lateral spines (Fig. 21).

Legs slender but short, unicolourously yellowish. Anterior femora rather thick; tibiae as long as the femora, rather strongly dilated near the base, external tympanum oblong, internal one nearly completely conchate; metatarsi very short, a little longer than wide, hardly half as long as the 3rd joint. Posterior femora very slightly dilated; tibiae as long as the femora, flattened above, armed with 6 or 7 small spines on each margin; spurs very short, the external ones almost all shorter than the spines, supero-internal spur a little longer than the intermediate; metatarsi short, as long as the 3rd joint, armed with two apical

spines besides the spurs.

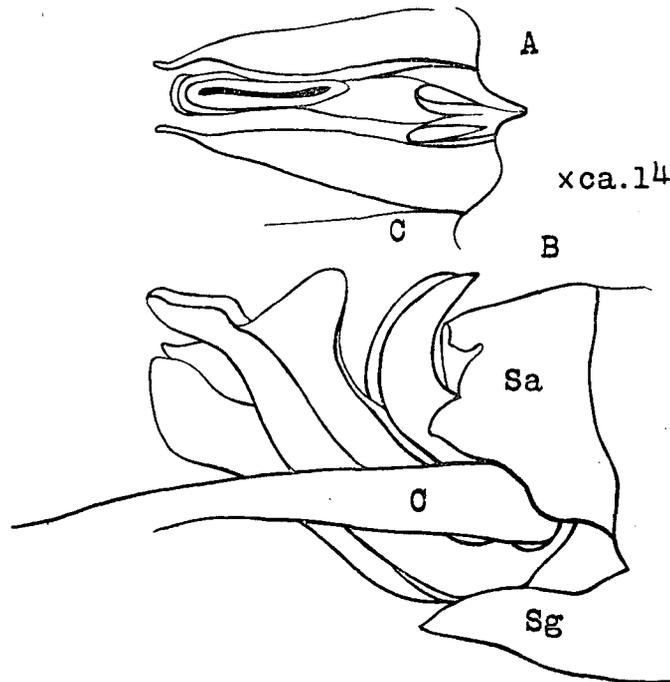
Elytra pale greenish, conspicuously extending beyond the apex of abdomen, large; apical field moderately lengthened, rather pointed at apex, presenting 8 long oblique veins, which are irregularly reticulated; speculum large, divided towards the middle, the dividing vein being straight; diagonal vein short, rather long furcate; 6 oblique veins, 3 of which are longer than the remainings and are rather parallel, the middle one of 3 short, much curved, oblique veins being furcate after the basal third, the external one more or less indistinct; veinlet from 1st cord reaching to the anterior angle of speculum. Wings a little longer than elytra.

♀. Head nearly as wide as the anterior margin of pronotum; pronotum comparatively broad, with the anterior margin much concave, posterior margin also much angulated hindwards, anterior one of two black spots along the superior margin of lateral lobe becoming a long horizontal stripe; subgenital plate boat-shaped, deeply notched behind. Ovipositor long, apical part distinctly curved downwards; apical valves rather small, black; furnished with rather strong tubercles beneath. Elytra wide, broadened towards the middle, then narrowed towards the rather pointed tip, presenting about 15 rather equally distant, rather strongly oblique veins; transverse veinlets numerous, forming a rather irregular

Fig. 21.

*Madacatumma hitinosis* MATS.

A ..... genitalia of male seen from above; C ..... cercus;  
 B ..... do. seen from side; Sa ..... supra anal plate; C ...  
 cercus; Sg ..... subgenital plate.



reticulation, the meshes of which are in the shape of transverse squares on the disk, but becoming polyhedral in the anterior part of the apical field; lateral field provided with about 14 oblique, regular veins.

Length: Body ♂ 20 mm, ♀ 18 mm; pronotum ♂ 4 mm, ♀ 4 mm; elytra 20 mm, ♀ 25 mm; wings ♂ 21 mm, ♀ 26 mm; post. femora ♂ 10 mm, ♀ 11.5 mm; post. tibiae ♂ 9.5 mm, ♀ 10.5 mm; anterior tibiae ♂ 3.8 mm, ♀ 4 mm; ovipositor 11 mm.

Hab.: Japan—Tokyo.

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

Genus *Pseudomasomma* nov.

Allied to *Madasomma* WALKER, but it is easily distinguished by long pronotum, which has very low lateral lobes.

Head small, very slightly wider than anterior margin of pronotum, presenting four distinct calosities on vertex; frontal rostrum very narrow. Maxillary palpi thick, short; apical joint strongly and suddenly thickened at the tip, not flattened; 4th joint very short, somewhat conical, 1st and 2nd joints comparatively long, rather slender. Labial palpi thick, apical joint conical. Antennae very long. Eyes comparatively large, a little lengthened antero-posteriorly, moderately projecting; ocelli very small, rather rudimental. Pronotum as long as wide, anterior margin distinctly rounded, posterior margin nearly straight; disk without median suture, presenting three anterior and two posterior calosities besides the crescent ones, the calosities being rather small and distinct, just behind the crescent calosities there are three shallow foveolae, the middle one of which is especially conspicuous; lateral lobes very low, the inferior margin evenly rounded, anterior margin strongly oblique hindwards and posterior one somewhat oblique forwards. Abdomen long; subgenital plate very large, conspicuously expanded behind; cerci very slender, rather short. Elytra hardly reaching to the apex of abdomen, but narrow and long; speculum distinct, with a dividing vein; oblique veins numerous; apical field short, irregularly reticulated; lateral field rather narrow, presenting numerous oblique veins. Wings present, short, very little extending beyond the elytra. Legs long; anterior tibiae dilated at the base, with external tympanum oval, internal tympanum strongly conchate; posterior femora moderately dilated, without a distinct slender apical part.

Type: *Pseudomasomma maculata* sp. nov.

76. *Pseudomasomma maculata* sp. nov. (Fig. 22)

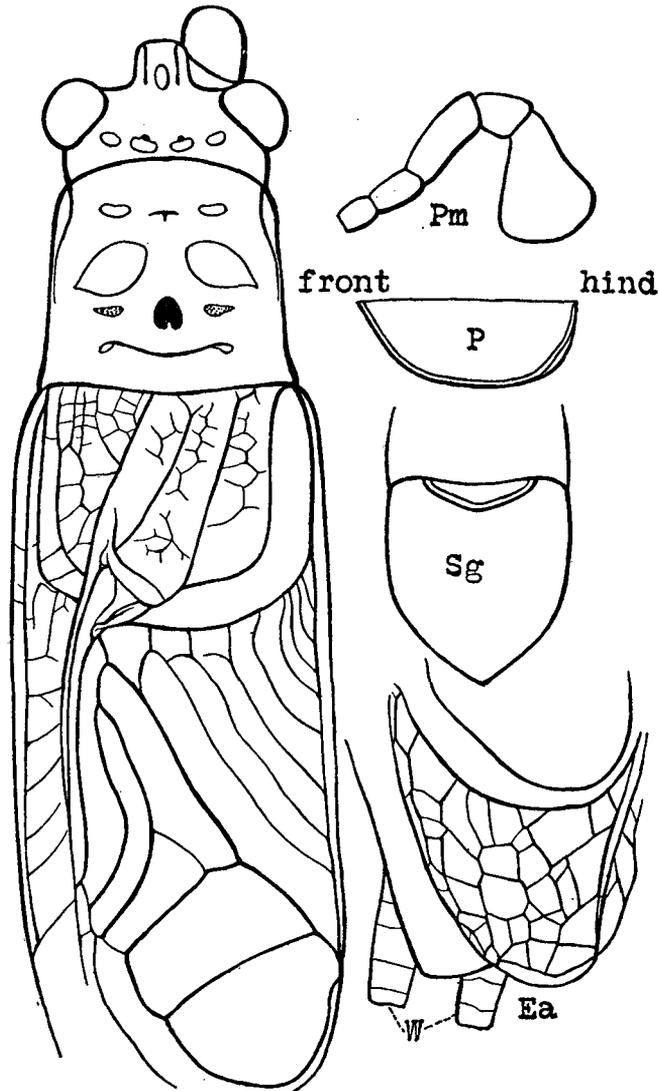
♂. Testaceous, yellowish pubescent. Frontal rostrum about half as wide

as the basal joint of antennae, parallel-sided; 2 pairs of calosities in a concave line between vertex and occiput round, of which the median pair is brown, a small foveola at the anterior margin of either median calosity; face very short, between antennae with distinct lateral sulci, which are strongly curved inwards; antennae pale brown, with a few widely separated yellowish rings, basal joint very broad, short, wider than long, presenting an interrupted transverse blackish band at either apical and basal margin.

Fig. 22.

*Pseudomadasumma maculata* sp. nov. x ca. 8, excepting Pm x ca. 14.

P ..... lateral lobe of pronotum; Sg ..... subgenital plate; Ea ..... apical field of elytra,  
W ..... wings.



Pronotum not bristled, the median foveola blackish; lateral lobes castaneous, the superior third black. Abdomen dark brown, with subgenital plate testaceous; cerci pale brownish. Legs testaceous; anterior and intermediate legs with a few small irregular blackish spots; posterior femora with rather large very ill-defined blackish markings at dorso-lateral surface, rather numerous small irregular blackish spots at the lower external face, a black spot near the apex of inferior side; posterior tibiae presenting a narrow blackish stripe on the depressed superior side, where is armed with 5 short external and 6 much shorter internal spines; external spurs very short, shorter than the spines, the inferior one minute, internal spurs moderate long, but the inferior one minute, the superior one longer than the intermediate or much more longer than the spines; posterior metatarsus slender, nearly cylindrical, somewhat thickened at apex, where is provided with two short spines besides two long spurs, the spurs being longer than the tibial spurs. Elytra pale testaceous, basal area irregularly brownish with 3 irregularly shaped brown spots at the base of cord and the external and posterior angles of speculum respectively; apical field rather irregularly brownish spotted; 7 oblique veins, 3 of which are rather straight and long, the remainings rather strongly sinuated; lateral field translucent, presenting 10 strongly oblique veins, along these irregularly striated with reddish.

Length: Body 14 mm; pronotum 3 mm; elytra 11.5 mm; wings 11 mm; post. femora 9 mm; post. tibiae 8 mm; anterior tibiae 3.2 mm.

Hab.; Formosa—Arisan (X).

Type in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

#### Genus *Euscyrtus* DE GUÉR

Mém. Icon. R. A. Ins., p. 334 (1840).

#### Key to the Japanese Species

1. Elytra long; wings caudate; head long, with very narrow frontal rostrum which is narrower than the basal joint of antennae; eyes more or less lengthened antero-posteriorly.
  2. Second joint of maxillary palpi longer than the 3rd; ovipositor very long, straight, conspicuously longer than abdomen... .. *formosanus* sp. nov.
  - 2<sup>2</sup>. Second joint of maxillary palpi as long as the 3rd; ovipositor short, nearly as long as the abdomen, conspicuously curved downwards at the apical thirds... .. *karnyi* sp. nov.
- 1<sup>1</sup>. Elytra very short, wings almost always wanting; head short; eyes round, or rarely very slightly lengthened supero-interiorly.
  2. Frontal rostrum wide, as wide as the basal joint of antennae... .. *japonicus* sp. nov.
  - 2<sup>2</sup>. Frontal rostrum narrow, distinctly narrower than the basal joint of antennae... .. *ogatai* sp. nov.

**77. *Euscyrthus japonicus* sp. nov. (Fig. 23, A)**

*Euscirtus himelytrus* MATSUMURA (nec DE HAAN), Thous. Ins. Jap., I, p. 137, pl. VI, fig. 13 (1904); SHIRAKI, Monogr. Gryll. Formosa, p. 122 (1911).

Very closely allied to *hemelytrus*, but it is easily distinguished from the latter in having 10 internal spines at the posterior tibiae. The author's description (Monogr. Gryll. Formosa, p. 122) requires the following completion:

Rather small, brownish. Eyes very rather, strongly projecting towards the side; clypeus with a narrow longitudinal furrow; the 1st to 5th joints of maxillary palpi gradually lengthened towards the apical one; pronotum strongly transverse, nearly twice as wide as long; dorsal field of elytra presenting 5 longitudinal veins, two of which emerge from the discoidal vein, the transverse veinlets rather scarce, forming large irregular areolae; anterior tibiae perforated with a large oblong internal and no external tympanum; posterior femora conspicuously exceeding beyond the apex of abdomen, the tibiae armed with 10 internal and 8 external spines; ovipositor longer than body, slightly curved downwards at the apical part.

Hab.: Japan—Gifu (IX), Tokyo (VIII); Korea—Koryo (VIII).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

**78. *Euscyrthus ogatai* sp. nov. (Fig. 23, B)**

Rather near to the preceding species, but easily distinguished by the shape of frontal rostrum, the distinct but very small marginal process of antennal groove, relative length of each joint of maxillary palpi, etc.

♀. Small, brown species. Head a little broader than pronotum, slightly flattened, dark brown, with 2 yellowish longitudinal lateral stripes; frontal rostrum pale testaceous, rather narrow, narrower than the basal joint of antennae, slightly widened behind, with distinct lateral carinae; face testaceous rather long, oblique, when seen from side straight; clypeus provided with 2 broad longitudinal furrows; cheeks pale testaceous, slightly swollen; vertex without pale stripes. Antennae yellowish brown; eyes moderate size, round, rather projecting. Maxillary palpi testaceous; apical joint longer than the third, the latter being longer than the 4th joint.

Pronotum quadrate, very slightly broadened forwards; anterior margin very slightly concave, posterior distinct sinuate; disk testaceous, with a pair of pale lateral stripes which are ill-defined at the internal margin, two round markings rather distinct, each of which is provided with rather inconspicuous crescent one in the centre, a rather broad posterior marginal band rather distinct and yellowish lateral lobes very slightly oblique backwards, nearly twice as long as high, blackish brown with inferior border yellowish, the inferior margin

somewhat straight with the anterior angle broadly rounded.

Abdomen long and slender, more than twice the head and pronotum together, yellowish brown; subgenital plate flattened, rounded behind; supra-anal plate rather very small, about as half as in *japonicus*, triangular, provided with a distinct median furrow; ovipositor castaneous, nearly as long as body, slightly curved downwards at the apex.

Legs moderate in length, yellowish brown. Anterior tibiae distinctly shorter than the femora, with only one large elongate internal tympanum; intermediate tibiae a little longer than the femora.

Posterior femora very much extending beyond the apex of abdomen, moderately swollen, with a distinct slender apical part; tibiae as long as femora,

armed with 9 internal and 8 extending spines, which are rather long and black tipped; metatarsi as long as the 3rd joint, second one longer than half the metatarsi.

Elytra short, gradually narrowed towards the apex, evenly yellowish brown, with veins castaneous; dorsal field with three longitudinal veins, the first one of which is furcated after the basal part, the transverse veinlets rather numerous, forming rather regular and small areolae; lateral field with three longitudinal veins free, the transverse veinlets inconspicuous but numerous, forming areolae. Wings wanting.

Length: Body 9.8 mm; pronotum 2mm; elytra 2.6mm; post. femora 7.8mm; ovipositor 8.5 mm.

Hab.: Formosa—Kyoto-sho (VIII).

Unique type in the Entomological Museum of Govern-

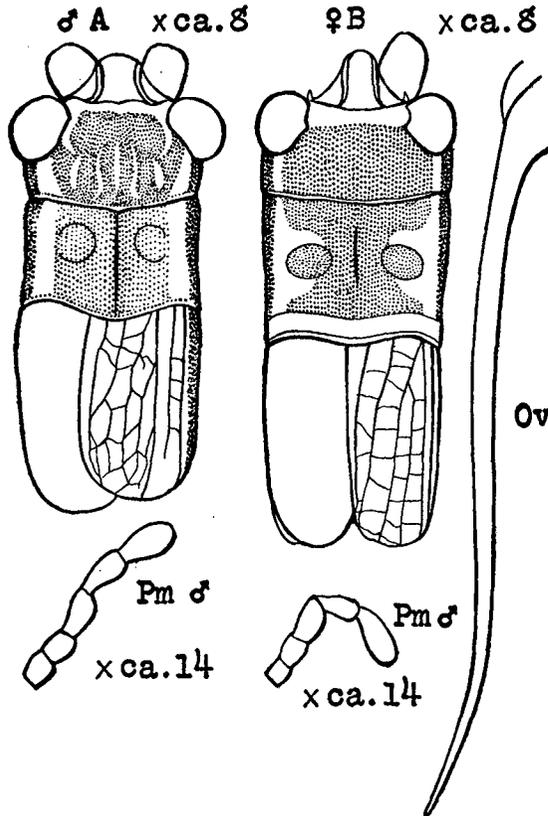


Fig. 23.

A. *Euscyrtus japonicus* sp. nov.

B. *Euscyrtus ogatai* sp. nov.

Pm ..... maxillary palpus seen from external side;

Ov ..... ovipositor.

ment Research Institute, Taihoku, Formosa, collected by the late F. OGATA, who was one of the author's assistants.

**79. *Euscirtus formosanus* sp. nov. (Fig. 24, B)**

♂, ♀. Long and slender, testaceous. Head brown, very slightly wider than pronotum, long, depressed above, where it has 2 pairs of longitudinal stripes which are almost entirely non-pubescent and rather tinged with yellowish; frontal rostrum brown, long and narrow, conspicuously narrower than the basal joint of antennae, narrowed apically especially in the male, distinctly carinate at sides, when seen from side placed on a straight line from occiput; marginal process of antennal grooves very conspicuous; face yellowish, convex; clypeus provided with 3 distinct deep longitudinal furrows; cheeks flattened, triangular, yellowish. Eyes small, rather slightly convex, when seen from side slightly lengthened antero-posteriorly. Antennae yellowish brown, probably more than thrice the length of body. Palpi yellowish brown, large; maxillary palpi rather thick, 2nd joint as long as the 4th or distinctly longer than the 3rd, apical joint rather strongly thickened or a little shorter than two basal joints united, basal joint globular.

Pronotum a little shorter than wide, parallel-sided, but in the female inconspicuously constricted, with moderately concave anterior and distinctly sinuate posterior margin; disk flattened, but the lateral margins rather strongly rounded, yellowish grey, with a narrow brownish median stripe which is ill-defined and continued to the same coloured median stripe of head, the median suture rather distinct, provided with 3 pairs of rather large calosities, the posterior pair of which is distinctly smaller and less distinct; lateral lobes twice as long as high, the inferior margin nearly horizontal and evenly but slightly convex, with a broad blackish basal band.

Abdomen very slender and long, yellowish brown; subgenital plate in the male yellowish, conspicuously long, gradually narrowed towards the pointed apex, in the female very short, wider than long, strongly convex behind; cerci pale brownish, becoming paler at the base, a little shorter than body, in the female nearly reaching to the tip of ovipositor; ovipositor yellowish castaneous, straight, never curved, very little shorter than body.

Legs yellowish brown, long; anterior tibiae as long as the femora, slightly enlarged at base, with two large oval tympani; anterior and intermediate femora rather strongly thickened, the latter being much shorter than the femora; intermediate tibiae much longer than the femora. Posterior femora very slender, nearly reaching to the apex of abdomen, without the special apical slender part; tibiae as long as the femora, armed with 9 external and 10 internal spines which are black at tips, denticles rather long; metatarsi slender, more than

twice as long as the 2nd joint.

Elytra pale testaceous, long, but not reaching to the apex of abdomen; dorsal field with 3 free oblique veins and 3 branches of discoidal, all parallel, the transverse veinlets scarce, forming large somewhat irregular areolae; lateral field blackish brown, becoming paler inferiorly, with 4 longitudinal veins, one of which is free and the remainings are branches of mediastinal vein. Wings well-developed, conspicuously expanded beyond the elytra.

Length: Body ♂ 16 mm, ♀ 15 mm; pronotum ♂ 2 mm, ♀ 2 mm; elytra ♂ 9 mm, ♀ 10 mm; wings ♂ 14 mm, ♀ 17 mm; ant. femora ♂ 2 mm, ♀ 2.1 mm; intermediate femora ♂ 1.5 mm, ♀ 1.6 mm; intermediate tibiae ♂ 1.8 mm, ♀ 2 mm; post. femora ♂ 9 mm, ♀ 9.1 mm; ovipositor 13 mm.

Hab.: Formosa—Taipin (IX), Kasha (IV), Horisha (V), Taito (II, III).

**80. *Euscirtus karnyi* sp. nov. (Fig. 24, A)**

*Euscirtus cephalotes* (?) KARNY (nec SAUSSURE), Suppl. Ent., IV, p. 67 (1915).

Very near to the preceding species, but easily distinguished by comparatively broad pronotum and rather short wings, as well as by strongly curved ovipositor.

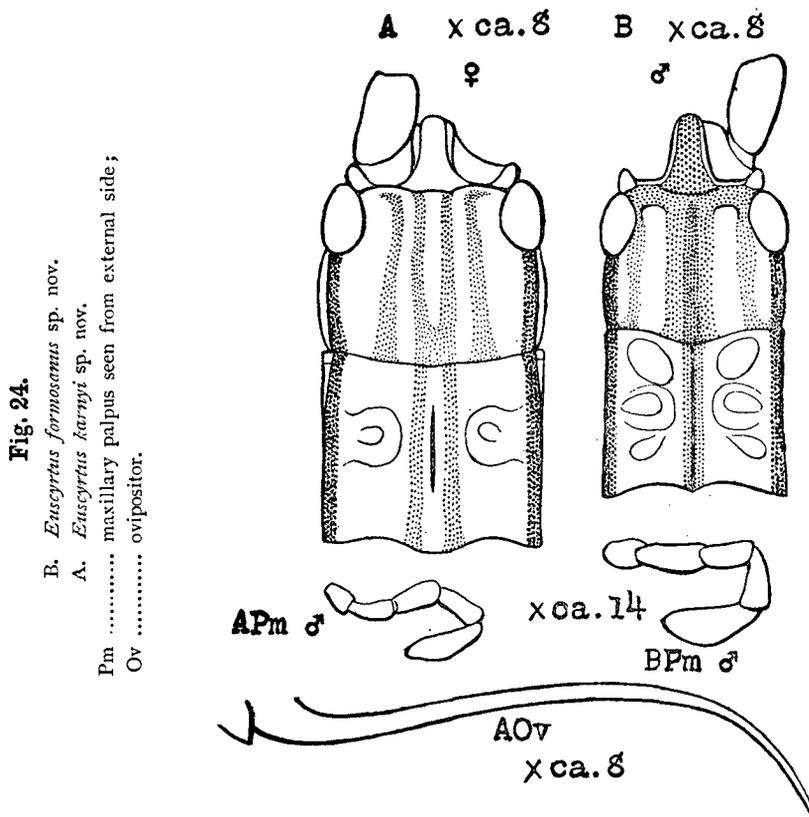
♂, ♀. Long and slender, but in the female rather broad, testaceous. Head very slightly wider than pronotum, long, depressed above, where it has 2 pairs of narrow, ill-defined, pale brownish median stripes and one pair of conspicuous brown lateral ones; frontal rostrum distinctly narrower than the basal joint of antennae, parallel-sided, but in the male distinctly narrowed apically as well as narrower than in female; marginal process of antennal grooves very conspicuous; face slightly oblique, posteriorly convex, with rather long clypeus which is presenting 3 longitudinal furrows, the median one being very deep and rather broad; cheeks somewhat paler, triangular, very slightly swollen beneath. Eyes small, when seen from side distinctly lengthened antero-posteriorly. Antennae yellowish, less than thrice the length of body, conspicuously fine (finer than in *formosanus*). Palpi pale, rather small; 2nd, 3rd and 4th joints of maxillary palpi similar in length, the apical joint being much longer.

Pronotum comparatively broad, parallel-sided but in the male very slightly constricted just behind the anterior margin, the latter in both the sexes being very slightly concave; posterior margin in the male strongly concave and in the middle very slightly and shortly produced behind, in the female strongly sinuate; disk with two narrow brownish median stripes, but in the male wanting, only the median markings distinct and large; lateral lobes rufous brown at the superior half, horizontal, twice as long as high, the inferior margin distinctly sinuate.

Abdomen rather short; subgenital plate in the male strongly swollen at

the base, and then strongly compressed towards the apical half, on the apical third there is a distinct but shallow median furrow, in the female very small and usual in shape; cerci pale yellow, rather short, a little longer than abdomen; ovipositor testaceous, shorter than the posterior tibiae, strongly curved downwards at the apical thirds.

Legs short yellowish. Anterior and intermediate femora thickened, comparatively long, the latter much shorter than the former one; anterior tibiae a little shorter than the femora, not dilated at base, with a very large elongate



internal and a small oval external tympanum; intermediate tibiae a little longer than the femora. Posterior femora irregularly spotted with brown above, not reaching to the apex of abdomen, moderately and regularly swollen, without a slender apical part; tibiae very little shorter than the femora, armed with 9 very short external and 10 long internal spines which are black at the tips, denticles rather numerous and black. Elytra rather short, nearly reaching to the middle of abdomen; dorsal field with 5 equal distant longitudinal veins, three of which

are quite free, one of the remainings emitting from the base of the discoidal and the other one from far behind the middle of the latter, the transverse veinlets numerous and rather regular; lateral field rufous-brown at the superior border, with two branches of mediastinal and one quite free vein; humeral vein furcate in its posterior half.

Length: Body ♂ 13 mm, ♀ 13.5 mm; pronotum ♂ 2 mm, ♀ 2.5 mm; elytra ♂ 6.5 mm, ♀ 6 mm; wings ♂ 9 mm, ♀ 8 mm; anterior femora ♂ 2.2 mm, ♀ 2.5 mm; intermediate femora ♂ 1.6 mm, ♀ 1.7 mm; ovipositor 8 mm.

Hab.: Formosa—Taihoku (IX), Kotosho (IV).

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

#### Genus *Podoscirtus* SERVILLE

Orth., p. 361 (1839).

#### 81. *Podoscirtus javanus* SAUSSURE (?)

♂. Medium size, elongate, testaceous brown, pale pubescent. Head as wide as pronotum in front, feebly convex, with a rather broad, ill-defined dark median stripe, conspicuously pale yellowish pubescent; frontal rostrum a little narrower than the first antennal joint, gradually widened posteriorly, depressed above, with a shallow longitudinal furrow on the apical half, which is continuous to the median suture hindwards, rounded at apex; facial ridge between the antennal bases very narrow, with a small foveolae at the sides; clypeo-facial suture rather strongly furrowed; cheeks yellow. Antennae yellowish brown, very fine. Eyes big, rounded but a little lengthened supero-inferiorly; ocelli moderate in size, yellowish, the anterior one distinctly smaller than the other ones and placed at the middle of the rostrum. Maxillary palpi yellowish; apical joint distinctly longer than the 3rd, slightly curved and enlarged; 4th conspicuously shorter than the 3rd.

Pronotum conspicuously pubescent, a little broader than long, distinctly narrowed forwards, the anterior margin nearly straight, the posterior margin produced behind; disk moderately convex, testaceous brown, with some crescent-like triangular markings and anterior and posterior pairs of callosities yellowish; lateral lobes rather spotted with rufous brown, horizontal, the inferior margin evenly rounded, the posterior lobe rather broad.

Abdomen orange-yellowish; subgenital plate rather long, pale orange-yellow, with two inconspicuously longitudinal carinae.

Legs rather short, rather long and pale yellowish pubescent. Anterior and intermediate femora moderately compressed, distinctly sulcate beneath, minutely

and very scarcely spotted with rufous-brown above; anterior tibiae rather strongly dilated near the base, perforated with a large oblong internal and a very small round external tympanum, the apical two-thirds distinctly but narrowly sulcate above. Posterior femora strongly dilated, densely pubescent, unicolourous, distinctly exceeding beyond the apex of abdomen; tibiae armed with 5 external and 6 internal long, pubescent spines, the denticles rather scarce but distinct; external spurs shorter than the spines, the intermediate one longer than the others; internal spurs long, the superior one a little shorter than the metatarsus; metatarsi rather short, moderately dilated, armed with 4 internal and 2 external denticles; 3rd joint a little longer than the metatarsi, very slender.

Elytra brown, rather narrow; dorsal field with 7 oblique and rather close veins, of which 3 are free and 4 emit from the discoidal; transverse veinlets very regular, forming long square areolae, margined with pale colour, especially in the discoido-humeral area being yellowish white; lateral field pale yellowish with 3 veins and 5 branches of the mediastinal. Wings distinctly extending beyond the elytra.

♀. Paler and broader than the male. Yellowish, yellowish transverse spots of elytra inconspicuous; legs all unicolourous, spurs of the posterior tibiae short, the supero-internal one much shorter than the metatarsi; as long as the 3rd joint, armed with 3 internal and 1 external denticles; external tympanum of the anterior tibiae rudimental; subgenital plate short, truncate behind; ovipositor shorter than the posterior femora, rather slender, the teeth of the apical valves distinctly pointed.

Length: Body ♀ 13 mm, ♂ 13 mm; pronotum ♀ 3 mm, ♂ 3 mm; elytra ♂ 1.25 mm, ♀ 1.5 mm; wings ♂ 15 mm, ♀ 17 mm; anterior femora ♂ 3 mm, ♀ 3.2 mm; intermediate femora ♂ 2.8 mm, ♀ 3 mm; intermediate tibiae ♂ 3 mm, ♀ 3.2 mm; posterior femora ♂ 8.5 mm, ♀ 9.5 mm; posterior metatarsi ♂ 1.2 mm, ♀ 1.5 mm.

Hab.: Formosa—Kotosho (VIII).

#### Genus *Aphonomorphus* REHN

Ent. News, XIV, p. 260 (1903).

*Eneoptera* DE HAAN (nec BURM.), Temminck, Verh. Orth., p. 231 (1842).

*Aphonus* SAUSSURE (nec LEC.), Mis. Mex. Orth., p. 509 (1874).

*Aphonogryllus* REHN (nec PERK.), Canad. Ent., XXXIII, p. 272 (1901).

#### 82. *Aphonomorphus japonicus* sp. nov.

*Pidoscirtus javanus* SHIRAKI (nec SAUSSURE), Monogr. Gryll. Formosa, p. 125 (1911).

Addition to the former description (Monogr. Gryll. Form. p. 125, 1911) as follows:

Yellowish brown to brown. Frontal rostrum a little wider than the basal joint of antennae; third joint of maxillary palpi distinctly longer than the 4th, or as long as two preceding joints together, the apical joint distinctly longer than the 3rd; eyes a little lengthened supero-inferiorly; anterior ocellus distinct, transverse, placed at the posterior end of median sulcus of frontal rostrum. Dorsal field of elytra with 7 oblique veins, of which 3 are free and 4 are branches of the discoidal, transverse veins rather irregular and numerous, forming irregular areolae, very rarely with a few yellowish white spots at the discohumeral area. Anterior tibiae with only one tympanum at the internal face; posterior tibiae armed with 6 (or rarely 7 in the female) internal and 5 external spines, as well as rather scarce denticles.

Hab.: Japan—Gifu (IX, XII), Kyoto.

Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

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## 摘 要

### 日 本 産 直 翅 目

#### 第 一 編

#### 螻蛄科、蚤蝗科及び蟋蟀科

農 學 博 士 素 木 得 一

本論には螻蛄科三種(一新種は満洲産なり)、蚤蝗科三種及び蟋蟀科八十二種を記載せり。尙この内に新種三十二、新屬三ありて、何れも本文に説明せり。他の直翅目は本誌に順次發表すべし。尙全直翅目の終りに總目錄と和名とを附記すべし。