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ORTHOPTERA OF THE JAPANESE EMPIRE

PART II

(BLATTIDAE)

By

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(With 20 Text Figures)

Key to the Subfamilies

1. Femora unarmed beneath (with a few exception).
 2. Supra-anal lamina of both sexes short, transverse, its posterior margin straight or rounded.
 3. Subgenital lamina of the male very small, without styles; claws without arolium... .. *Panesthiinae*
 - 3³. Subgenital lamina of the male somewhat produced, furnished with a single style, claws with a distinct arolium, except in the genus *Paranauphoeta*.
 4. Wings rounded at the apex, without apical field. *Perisphaerinae*.
 - 4⁴. Wings pointed at the apex, with a distinct apical field. *Oxyhaloinae*.
 - 2². Supra-anal lamina of both sexes more or less produced, its posterior margin emarginate.
 3. Claws with a distinct arolium. *Panchlorinae*.
 - 3³. Claws without or with a minute arolium. *Corydinae*.
- 1¹. Femora spined beneath.
 2. Last ventral abdominal segment of the female provided with valves.... .. *Blattinae*.
 - 2². Last ventral abdominal segment of the female large, without valves.
 3. Supra-anal lamina of both sexes more or less produced, triangular or emarginate; wings, when present, with or without triangular apical field, ulnar vein ramose; posterior femora usually strongly spined beneath.
 4. Supra-anal lamina of the male more or less quadrate, with obtuse angle, of the female broadly rounded or lobate; tarsi with distinct pulvilli; ulnar vein of wings emitting parallel branches towards the dividing vein. *Epilamprinae*.
 - 4⁴. Supra-anal lamina of both sexes triangular, entire; cerci projecting considerably beyond this plate. *Phyllodrominae*.
 - 3³. Supra-anal lamina of both sexes usually transverse, narrow; wings when present with an apical field, ulnar vein simple or bifurcate; posterior femora usually sparsely armed with spines beneath. *Ectobinae*.

Subfamily PANESTHIINAE

BRUNNER VON WATTENWYL, Syst. Blatt., p. 384 (1865).

Key to the Japanese genera

1. Seventh dorsal segment of abdomen serrate at the lateral margins. *Panesthia*, SERVILLE
- 1¹. Seventh dorsal segment of abdomen not serrate at the lateral margins *Salganea*, STÅL

I. Genus *Panesthia* SELVILLE

Ann. Sci. Nat., XXII, p. 38 (1831).

Key to the Japanese species

1. Body large, more than 30 mm long; last ventral abdominal segment of the male broadly straight or sinuate at the apical margin, of the female rounded.
2. Anterior margin of pronotum conspicuously and rather broadly excavate in the middle. *spadicum*, SHIRAKI
- 2². Anterior margin of pronotum very slightly sinuate in the middle *angustipennis*, ILLIGER
- 1¹. Body small, less than 30 mm long; last ventral abdominal segment of the male very narrowly but distinctly sinuate at the apex, of the female very narrowly straight. *incerta*, BRUNNER VON WATTENWYL

1. *Panesthia spadicum*, SHIRAKIAnnot. Zool. Jap. IV., pt. 1, p. 32, pl. II, fig. 2; Larva (*Cryptogercus*) (1906).*Panesthia saussurei*, KARNY (nec STÅL), Suppl. Ent. IV., p. 90 (1915).

Very closely allied to *saussurei* from Philippines, but it is distinguished from that as follows:

Pronotum with two short rounded processes, which are never curved nor pointed, at the margin between these processes there is no distinct broad process, but it is rather narrow and almost always curved inwards or rarely nearly straight. Scutellum always with two rows of distinct punctuations in the middle of the posterior two-thirds, on the lateral borders there is also a single row of punctuations along the margin of tegmina. Abdomen weakly punctate, while in *saussurei* it is strongly punctate; last ventral segment of male nearly straight on the apical and lateral margins, but the both in *saussurei* distinctly curved inwards.

Many specimens, determined by KARNY, as *saussurei*, are *spadicum* m.

Hab.: Formosa—Karenko (VII, VIII), Horisha (V-VIII), Taiheisan (VIII), Tamaru (VIII), Arisan (VI), Kosempo (VII), Fuhosho (VIII), Shu-Shu (II), Taihorin (VIII), Hosan (I), Yomano-Taiko. China—Tsha-Jiu-San (VII).

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

2. *Panesthia angustipennis*, ILLIGERMag. Insekt. I., p. 185 (*Blatta*) (1801).*Panesthia aethiops*, WALKER, Cat. Blatt. B. Mus., p. 20 (1858).

Hab.: Formosa—Kosempo (VII); Japan—Okinawa, Banshu; Sumatra; Borneo; Philippines; Amboina.

3. *Panesthia incerta*, BRUNNER VON WATTENWYL

Ann. Mus. Genova, XXXIII, p. 50 (1893).

Hab.: Formosa—Horisha (V), Fuhosho (VI), Kosempo (XI), Musha (V, VI), Shinchiku (VII); Japan—Okinawa (VIII); Burma.

II. Genus *Salganea* STÅL

Oefv. Vet.-Akad. Förh. XXXIV (10), p. 37 (1877).

Key to the Japanese species.

1. Cerci distinctly pointed at the tip. *morio*, BURMEISTER
 1¹. Cerci narrowly rounded at the tip. *passaloides*, WALKER

4. *Salganea morio*, BURMEISTERHandb. Ent. II., p. 513 (*Panesthia*) (1838).*Panesthia regina*, SAUSSURE, Mém. Soc. Genève, XVII, p. 167, pl. 1, fig. 24 (1864).

Hab.: Formosa—Musha (VI), Kosempo (X), Fuhosho (VII); Australia; Papau.

5. *Salganea passaloides*, WALKERCat. Blatt. B. Mus., p. 22 (*Panesthia*) (1868).*Panesthia rufa*, WALKER, Cat. Blatt. B. Mus., p. 23, Larva (1868).*Salganea ceylonica*, BRUNNER VON WATTENWYL, Ann. Mus. Genova, XXXIII, p. 46 (1893).

Hab.: Formosa—Arisan (IV), Fuhosho (VI); India; Ceylon.

Subfamily *PERISPHAERINAE* BRUNNER VON WATTENWYL

Syst. Blatt., p. 302 (1865).

Key to the Japanese genera

1. Tarsi rather short, robust; metatarsi of posterior legs shorter than the following joints together; posterior margin of pronotum convex; tegmina and wings in the female wanted.
 2. Female not strongly convex, the posterior angles of dorsal segments not produced behind. *Pseudoglomeris*, BRUNNER VON WATTENWYL
 2². Female strongly convex, the posterior angles of dorsal segments more or less produced behind. *Perisphaeria*, SERVILLE
 1¹. Tarsi rather long; metatarsi of posterior legs longer than or as long as the following joints together; tegmina and wings in both sexes developed; posterior margin of pronotum straight. *Paranauphaeta*, BRUNNER VON WATTENWYL

III. Genus *Pseudoglomeris* BRUNNER VON WATTENWYL

Ann. Mus. Genova, XXXIII., p. 42 (1893).

Kurokia, SHIRAKI, Trans. Sapporo Nat. Hist. Soc. Jap., I, pt. 2, p. 6 (1906).6. *Pseudoglomeris planiuscula*, BRUNNER VON WATTENWYL

Ann. Mus. Genova, XXXIII., p. 44 (1893).

Kurokia nigra, SHIRAKI, Trans. Sapporo Nat. Hist. Soc. Jap., I, pt. 2, p. 6 (1906).

Hab.: Formosa—Shu-Shu (II), Naifumpo (IX), Horisha (V, VIII), Urai (X), Taihorin; Burma; Tonking.

IV. Genus *Perisphaeria* SERVILLEAnn. Sci. Nat., XXII., p. 44 (1831) (*Perispherus*)*Perisphaera*, SERVILLE, Ins. Orth., p. 132 (1839).7. *Perisphaeria pygmaea*, KARNYSuppl. Ent. IV., p. 92 (*Perispherus pygmaeus*) (1915).

Hab.: Formosa—Suisharyo, Kosempo (VII), Hosan (I), Arisan (X).

Types in the Entomological Institute of Kaiser Wilhelm Gesellschaft, Berlin-Dahlem.

V. Genus *Paranauphoeta* BRUNNER VON WATTENWYL

Syst. Blatt., p. 397 (1865).

8. *Paranauphoeta formosana*, MATSUMURAThous. Ins. Japan, Add. I., p. 13, pl. II, fig. 12 (*circumdata* var.) (1913).*Paranauphoeta shelfordi*, KARNY, Suppl. Ent., IV., p. 94 (1915).

Hab.: Formosa—Toyen (XII), Koshun (XI), Shinchiku (VII), Hosan (X), Horisha (V), Fuhosho (VI), Teraso (XI), Shu-Shu (I), Kosempo (VII).

Subfamily *OXYHALOINAE* BRUNNER VON WATTENWYL

Syst. Blatt., p. 251 (1865).

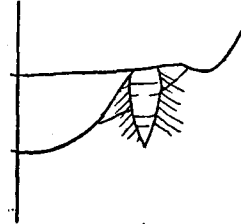
VI. Genus *Diploptera* SAUSSURE

Rev. Zool. XVI (2), p. 325 (1864).

Eleutheroda, BRUNNER VON WATTENWYL, Syst. Blatt., p. 264, fig. 29 (1865).9. *Diploptera nigrescens*, n. sp. Fig. 1.Closely allied to *minor*, but it differs as follows:

♂. Black, with the very narrow anterior margin of pronotum, the mouth parts, the apical two-thirds of antennae, the legs (except for coxae), and the cerci, reddish yellow or light reddish brown; wings brown, with a greenish lustre, the blackish veins and the blackish brown costal margin; supra-anal lamina comparatively narrowed towards the apex; cerci bearing a few long pale hairs at the sides; pronotum very finely but distinctly rugose; the punctations of tegmina much distinct and larger than in *minor*.

Fig. 1.



Diploptera nigrescens
♂ × ca 8.
Dorsal view of anal end.

Length:	Body	12.5 mm.
	Pronotum	2.9 mm.
	Width of pronotum	5.5 mm.
	Tegmina	8.9 mm.
	Wing	13.2 mm.
	Post. femur	3.5 mm.
	Post. tibia	3.3 mm.
	Post. tarsus	2.0 mm.

Hab.: Formosa—Musha (V-VI), Horisha (V-VIII).

The female is not known.

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

Subfamily CORYDINAE SHELFOLD

Gen. Ins., 109, p. 1 (1910).

Key to the Japanese genera

1. Medium-sized. Antennae in the middle broadened; tegmina entirely coriaceous; wings entirely membranaceous. *Corydia*, SERVILLE
- 1¹. Very small. Antennae filiform; tegmina coriaceous at the basal half, but the apical half membranaceous and without distinct veins; wings membranaceous, but in the middle of costal margin there are two large coriaceous parts and on the apical half no distinct vein. ... *Pseudoholocampa*, n. g.

VII. Genus *Corydia* SERVILLE

Ann. Sci. Nat. XXII, p. 42 (1831).

10. *Corydia zonata*, SHIRAKI

Trans. Sapporo Nat. Hist. Soc. Jap. II., pt. 1-2, p. 110 (1908).

Hab.: Formosa—Hosan (IV), Horisha (IV), Kosempo (XI), Taihorin (VI), Musha (V, VI), Fuhosho (VI).

var. *taitoensis* n.

The reddish yellow band of tegmina interrupted in the middle, so that there is a large triangular costal spot on each tegmina; the whitish portion of antennae long.

Hab.: Formosa—Taito (III, II).

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

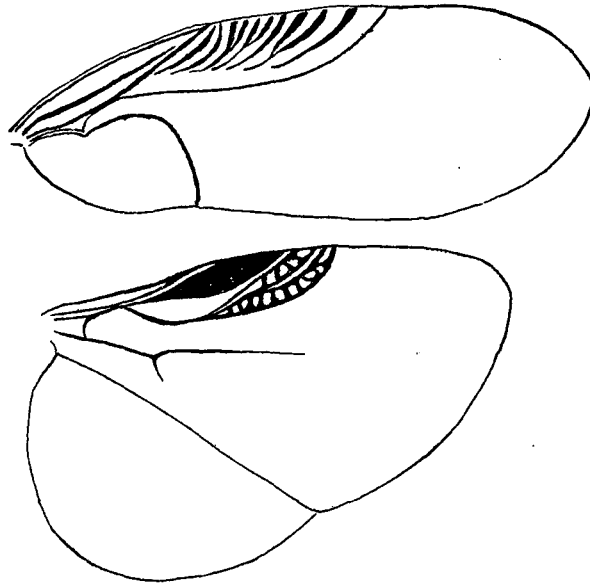
VIII. Genus *Pseudoholocampsa* n.

Closely allied to *Holocampsa* BURMEISTER, but differs as follows:

Scapular, marginal and axillary fields of tegmina coriaceous; costal veins 7, distinctly swollen; axillary area without vein; ulnar vein multi-ramose, but very indistinct and at the base not developed. Wings only once folded longitudinally; radial vein bifurcate, the first branch widely swollen, the second one also much broadly swollen at the apical two-thirds, the both forming the coriaceous marginal field; costal veins more or less distinct and swollen on the second coriaceous area; ulnar vein very strong at the base, but the apical $\frac{4}{5}$ very weak and rudiment. Cerci strongly curved beneath.

11. *Pseudoholocampsa formosana*, n. sp. Fig. 2.

Fig. 2.



Pseudoholocampsa formosana. \times ca 8.
Tegmina and wing, showing main venation.

♀. Blackish brown, with legs yellowish brown. Tegmina blackish brown on the coriaceous area, but the rest brown, with a large hyaline spot in the middle; wings pale brown, with the coriaceous portions black and rugose, ulnar vein trifurcate near the base and then multi-ramose. Supra-anal lamina transverse-quadrate, slightly rounded at the posterior lateral angle, exceeding the ventral valves; cerci cylindrical, pointed, black. Posterior metatarsus cylindrical, narrow, longer than the following joints together.

		♀
Length:	Body	4.5 mm.
	Tegmina	5 mm.
	Pronotum	1.5 mm.
	Wing	5.5 mm.

Only one female from Formosa (Shinchiku, VII).

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

Subfamily *PANCHLORINAE* BRUNNER VON WATTENWYL

Syst. Blatt., p. 226 (1865).

IX. Genus *Leucophaea* BRUNNER VON WATTENWYL

Syst. Blatt., p. 278 (1865).

Pycnocelus, SCUDDER, Boston Journ. Nat. Hist. VII., p. 424 (1862).

12. *Leucophaea surinamensis*, LINNAEUS

Syst. Nat. I (X), p. 424 (*Blatta*) (1758).

Blatta melanocephala, STOLL, Spect. Blatt., p. 7, pl. 4d, fig. 20 (1813).

Blatta indica, FABRICIUS, Syst. Ent., p. 272 (1775).

Blatta punctata, ESCH., Entom., p. 86 (1822).

Blatta corticum, SERVILLE, Ins. Orth., p. 90 (1839).

Panchlora celebesa, WALKER, Cat. Blatt. B. Mus., p. 26 (1868).

Panchlora submarginata, WALKER, Cat. Derm. Salt. B. Mus. V., Suppl. Blatt., p. 7 (1871).

Panchlora occipitalis, WALKER, Cat. Derm. Salt. B. Mus. V., Suppl. Blatt., p. 7 (1871).

Pycnocelus obscurus, SCUDDER, Boston Journ. Nat. Hist. VII., p. 424 (1862).

Epilampra dimorpha, SHIRAKI, Ann. Zool. Jap. VI., pt. 1, p. 22, pl. II, fig. 6 (1906).

Hab.: Japan—Ogasawara, Ishigaki; Formosa—Ampin (V, VIII), Tainan, (V), Teraso (II), Kankau (VII), Taihanroku (IX), Taito (II, III), Horisha (VIII), Takesaki (VII).

Nearly Cosmopolitan.

Subfamily *BLATTINAE* SHELFOLD

Gen. Ins., 103, p. 1 (1910).

Key to the Japanese genera

1. Posterior metatarsus longer than the remaining joints together, the second and generally the 3rd of which are armed beneath.
2. Both sexes or male sex only with well-developed tegmina.
3. Second joint of posterior tarsi long, together with the third and fourth joints biserially spined beneath; pulvilli minute.

4. Tegmina of the both sexes well-developed, exceeding the apex of abdomen, but of the female rarely very short.
5. Pronotum broadest behind the middle, its sides deflexed. ... *Periplaneta*, BURMEISTER
- 5^s. Pronotum broadest before the middle, discoidal. *Homalosilpha*, STÅL
- 4⁴. Tegmina of the male variable, but always shorter than the abdomen, of the female squamiform or truncate or lanceolate. *Blatta*, LINNAEUS
- 3^s. Second joint of posterior tarsi short, the fourth joint unarmed beneath; pulvilli moderately large.... .. *Dorylaea*, STÅL
- 2². Both sexes apterous or with squamiform tegmina. *Styropyga*, FISCHER VON WALDHEIM
- 1¹. Posterior metatarsus shorter or not longer than the remaining joints together, which are unarmed beneath. Tegmina and wing absent or rudimentary.
2. Posterior metatarsus short, not spined beneath or with only a few spines; pulvillus usually large, and occupying at least half of the joint. *Platyzozeria*, BRUNNER VON WATTERWYL
- 2². Posterior metatarsus longer, spined beneath; pulvillus not occupying half of the joint. *Cutilia*, STÅL

X. Genus *Periplaneta* BURMEISTER

Handb. Ent. II., p. 502 (1838).

Caceriac, SAUSSURE, Mém. Mex. Blatt., p. 71 (1864).

Key to the japaese species

1. Tegmina of the both sexes well-developed, exceeding the apex of abdomen.
2. Pronotum with distinct yellowish marking.
3. Tegmina with a yellowish longitudinal band on the scapular area. ... *australasiae*, FABRICIUS
- 3^s. Tegmina without such band. *americana*, LINNAEUS
- 2². Pronotum without yellowish marking.
3. Legs comparatively short; hind tibiae about 1½ times as long as the femora; subgenital lamina of the male not emarginate, but slightly rounded. *picea*, SHIRAKI
- 3^s. Legs comparatively long; hind tibiae about twice as long as the femora; subgenital lamina of the male emarginate and with slightly rounded lobes. *emarginata*, KARNY
- 1¹. Tegmina of the female short, not or hardly reaching to abdominal end.
2. Supra-anal lamina distinctly emarginate; last dorsal segment of abdomen distinctly sinuate in the middle of posterior margin.

Female

3. Blackish, with legs black or blackish brown.
4. Tegmina, a little longer than pronotum, the apex being broad and very slightly rounded; pronotum very smooth, without any elevation, although there is one pair of very slight lateral excavation; abdomen long, supra-anal lamina triangularly emarginate, the lobes being triangular.... .. *formosana*, KARNY
- 4¹. Tegmina more than twice of pronotum, the apex being narrowly rounded; pronotum with two small protuberances, the posterior margin very slightly curved hindwards; abdomen short and oval, not elongate, supra-anal lamina slightly emarginate and with the very short pointed lobes.... .. *japonica*, KARNY
- 3^s. Yellowish brown or castaneous, with legs light yellow; pronotum smooth, without protuberance, the posterior margin nearly straight.
4. Tegmina a little longer than pronotum, the apex broad, straight and slightly oblique, not rounded; abdomen elliptical, the posterior margin of supra-anal lamina broadly emarginate

- and with the far apart rounded lobes *arisanica*, n. sp.
 4'. Tegmina reaching to the abdominal end, the apex being rounded; posterior margin of supra-anal lamina narrow and obtusely emarginate.
 *karnyi*, n. n. (*Ischnoptera formosana*, KARNY)

Male.

- 3'. Pronotum slightly rounded behind.
 4'. Blackish. Pronotum with a distinct broad furrow along the lateral margin; supra-anal lamina broad, emarginate and with the sharply pointed lobes *japonica*, KARNY
 4''. Reddish yellow. Pronotum not reflexed at the lateral margins; supra-anal lamina conspicuously narrowed at the apex, triangularly emarginate and with the short triangular lobes. *arisanica*, n. sp.
 3³. Pronotum somewhat obtusely produced behind, pale yellowish but obscured by numerous black dots, the lateral margins slightly reflexed but there is no furrow. Body yellowish; tegmina and wing brown, the former being more or less marmorate with black colour. Supra-anal lamina emarginate behind and with more or less rounded lobes. *formosana*, KARNY
 2². Supra-anal lamina not emarginate; last dorsal segment of abdomen slightly rounded, never emarginate; subgenital lamina of the male rounded behind; tegmina of the female very short, about 1½ times as long as pronotum, narrowly rounded at the apex.
 3. Small species, less than 15 mm long.
 ♀. Castaneous brown, with legs light yellow. Posterior margin of supra-anal lamina indistinctly sinuate in the middle; posterior margin of last dorsal segment of abdomen not pointed in the middle.
 ♂. Pronotum yellowish brown; tegmina light castaneous, with a large round black apical spot, conspicuously exceeding the abdomen; tarsi brown; supra-anal lamina rather broad, the posterior margin being straight; subgenital lamina rounded behind. *apicalis*, n. sp.
 3³. ♀. Medium-sized species, more than 15 mm long; dark castaneous, with legs reddish yellow. Supra-anal lamina straight behind; posterior margin of last dorsal segment of abdomen slightly convex and pointed in the middle. *sonana* n. sp.

13. *Periplaneta australasiae* FABRICIUS

Syst. Ent., p. 271 (*Blatta*) (1775).

Periplaneta zonata, DE HAAN, Temminck, Verhand., p. 49 (1842).

Periplaneta repanda, WALKER, Cat. Blatt. B. Mus., p. 125 (1868).

Periplaneta subcincta, WALKER, Cat. Blatt. B. Mus., p. 126 (1868).

Periplaneta inclusa, WALKER, Cat. Blatt. B. Mus., p. 126 (1868).

Periplaneta subornata, WALKER, Cat. Derm. Salt. B. Mus., V, Suppl. Blatt., p. 35 (1871).

Periplaneta emittens, WALKER, Cat. Derm. Salt. B. Mus., V, Suppl. Blatt., p. 37 (1871).

Hab: Formosa—Main island, Kotosho; Japan—Okinawa; Cosmopolitan.

14. *Periplaneta americana* LINNAEUS

Syst. Nat., (X) I, p. 424 (*Blatta*) (1758).

Blatta kakkeriac, DE GEER, Mém. Ins., III., p. 535, pl. 44, figs. 1-3 (1773).

Blatta aurelianensis, FOUCROY, Ent. Paris, I., p. 177 (1785).

Blatta siccifolia, STALL, Spect. Blatt., p. 5, pl. 3d, figs. 10 & 11 (1813).

Blatta aurantiaca, STALL, Spect. Blatt., p. 5, pl. 3d, fig. 14 (1813).

Periplaneta stolidata, WALKER, Cat. Blatt. B. Mus., p. 128 (1868).

Hab.: Formosa—Main island; Japan—Okinawa, Kiushu; Cosmopolitan.

15. *Periplaneta picea* SHIRAKI

Annot. Zool. Jap., VI, pt. 1, p. 26, pl. II, fig. 3 (1906)

Blatta pallipalpis, (P. P.) BRUNNER VON WATTENWYL (nec Serville), Syst. Blatt., p. 238 (1865).

Periplaneta pallipalpis, SHIRAKI (nec Serville), Tr. Sapporo Nat. Hist. Soc., I, 2, p. 4 (1906).

Hab.: Formosa—Hosan (XII), Fuhosho (VII), Kusukusu (IV); Japan—Takasago (X), Tsushima, Oshima (VII); China.

Types in the Entomological Museum of Hokkaido Imperial University, Sapporo.

16. *Periplaneta emarginata* KARNY

Wiss. Ergebn. Exped. Filchner China u. Tibet, VIII, 1, p. 19 (1908).

Hab.: Japan—Yamaguchi (VII), Miyasaki (VIII); China.

17. *Periplaneta formosana* KARNY

Suppl. Ent., IV, p. 96 (1915).

Hab.:—Formosa—Shinten (VI), Shinchiku (VII), Musha (VII), Fuhosho (VII), Taihorin (V, VIII).

Types in the Entomological Institute of Kaiser Wilhelm Gesellschaft, Berlin-Dahlem.

18. *Periplaneta japonica* KARNY

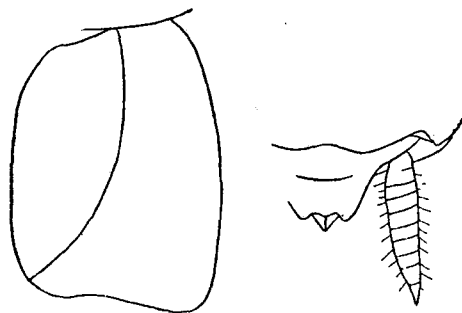
Wiss. Ergebn. Exped. Filchner China u. Tibet, X., 1, p. 13 (1908).

Hab.: Japan—Yamaguchi (VII).

19. *Periplaneta arisanica* n. sp. Fig. 3.




Yellowish brown, rather small species, somewhat allied to *japonica* KARNY.

Fig. 3.



Periplaneta arisanica. ♀. × ca 4.
Right tegmina and dorsal anal end.

♂ ♀. Head almost entirely covered by pronotum, shining castaneous, except for the mouth part and also in the male for the face, the both being yellowish: Eyes black: Antennae yellowish brown to brown, but gradually paler towards the tip. Pronotum smooth, shining pale castaneous, slightly convex, in the male with two inconspicuous oblique depressions and with slightly rounded posterior margin which is nearly straight in the female. Tegmina pale yellowish brown, shining; in the male long and narrow, exceeding the abdomen, but in the female

very short and subquadrate with apical margin oblique, a little longer than the pronotum or its width. Legs light yellow, posterior metatarsus distinctly but not very much longer than the remaining joints together. Abdomen pale or dark castaneous, in the female oval and very slightly broadened hindwards; supranal lamina of the male obtusely emarginate and with short triangular lobes, but of the female subquadrately emarginate and with rather rounded lobes, its posterior margin being therefore -shaped in the male and -shaped in the female; subgenital lamina of the male rather broad, its posterior margin nearly straight with the lateral corners rounded ; last dorsal segment of the female (subgenital lamina) rather broad, about $1\frac{1}{2}$ times as wide as long.

Length:	♂	♀
Body	22 mm	18 mm
Tegmina	25	6.0
Pronotum	5.8	5.0
(width)	7.2	6.5
Post. femur	6.8	5.0
Post. tibia	8.5	6.5
Post. tarsus	7.0	5.2

Hab.: Formosa—Arisan (IV).

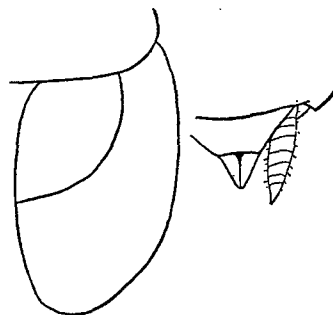
Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

20. *Periplaneta apicalis* n. sp. Fig. 4.

Small castaneous species, distinguished by a large round black apical spot of male-tegmina.

♂ ♀. Head almost entirely covered by pronotum, of the male reddish yellow and of the female castaneous; eyes black; antennae blackish brown or brown, with the basal joint paler; palpi brown (♂) or yellow (♀). Pronotum smooth, moderately convex; ♂ yellowish brown, the posterior margin rounded; ♀ castaneous, the posterior margin very slightly convex. Tegmina of the male light reddish brown, but dark brown in the broad middle part of basal half, and with a large round black apical spot, which occupies the apical fourth of tegmina; of the female very short, elliptical, uniformly castaneous. Wing of the male orange-yellow, somewhat obscured by a brownish colour, the outer margin broadly blackish. Abdomen brown (♂) or dark

Fig. 4.



Periplaneta apicalis. ♀. × ca 4.
Right tegmina and dorsal anal end.

castaneous (♀), with the ventre paler, oval in the both sexes; supra-anal lamina somewhat semicircular, of the male nearly straight at the apex and of the female very slightly sinuate at the apex; subgenital lamina of the male comparatively large and semicircular; last dorsal segment of the female (subgenital lamina) about triangular and as long as wide. Legs rather long; of the male yellowish brown, with tibiae and tarsi brown; of the female uniformly light reddish yellow. Cerci brownish black, of the male long and slender.

Length:	♂	♀
Body	13.8 mm	12.0 mm
Tegmina	16.5	5.5
Pronotum	4.5	3.8
(width)	6.0	5.0
Post. femur.	4.5	3.5
Post. tibia	6.5	4.5
Post. tarusus	4.5	3.5

Closely allied to *karnyi* (*Ischnopt. formosana* KARNY), but distinguished by the very short tegmina of female and by the rather short transverse supra-anal lamina of female which is hardly sinuate behind.

Hab.: Formosa—Horisha (IV).

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

21. *Periplaneta karnyi* n. n.

Ischnoptera formosana, KARNY, Suppl. Ent., IV., p. 102 (1915).

I have examined the Type of KARNY in Deutsches Entomologisches Institut, Berlin-Dahlem; this is not *Ischnoptera* at all, as the last ventral segment of abdomen is distinctly provided with valves; the name, *formosana*, is praecoccupied in *Periplaneta*.

Hab.: Formosa—Taihanroku (IX).

The male is not known. Type in the Entomological Institute of Kaiser Wilhelm Gesellschaft, Berlin-Dahlem.

22. *Periplaneta sonana* n. sp. Fig. 5.

Rather small black species, with the legs light reddish brown.

♀. Head entirely covered by pronotum, black, with the mouth part reddish brown; palpi light yellow; antennae pale brown; eyes black. Pronotum strongly convex, smooth, without any depression, the posterior margin moderately rounded. Tegmina dark castaneous, elliptical, the fore margin being strongly curved, about $1\frac{1}{2}$ times as long as pronotum or about twice as long as wide. Ab-

domen rather short, oval but not strongly broadened behind; last dorsal segment very short and broad, triangular at the middle $\frac{5}{7}$ of posterior margin; supra-anal lamina somewhat semicircular, but the middle of posterior margin straight and yellowish margined; last ventral segment (subgenital lamina) slightly broader than long, subtriangular; cerci black, rather short. Legs rather short.

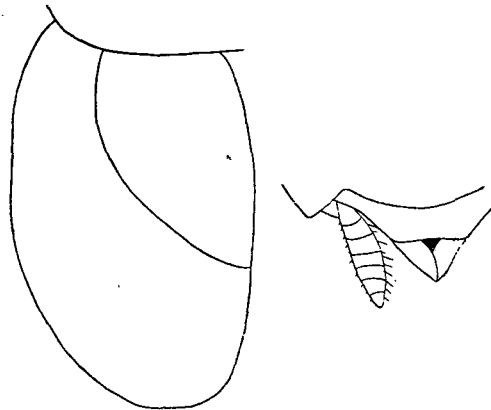
Length: ♀

Body	16.5 mm
Pronotum	4.8
(Width)	6.2
Tegmina	8.0
Post. femur	5.3
Post. tibia	6.0
Post. tarsus	ca. 5.0

Hab.: Formosa—Taihoku (VII), collected by Mr. J. SONAN.

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

Fig. 5.



Periplaneta sonana. \times ca 4.
Left tegmina and dorsal anal end.

XI. Genus *Blatta* LINNAEUS

Syst. Nat., (X) I, p. 424 (1758).

Key to the Japanese species

1. Tegmina of the both sexes more or less pointed *concinna*, DE HAAN
 1¹. Tegmina of the male truncate, of the female very short and placed on the sides
 *orientalis*, LINNAEUS

23. *Blatta concinna* DE HAAN

Temminck, Verhand. Orth., p. 50 (1842).

Periplaneta borrei, SAUSSURE, Mém. Soc. Gen., XXIII, p. 113, pl. X, fig. 38 (1873).

Blatta brunneri, KIRBY, Ann. M. Nat. Hist., (7) XII, p. 375 (1903).

Hab.: Japan—Tokyo (VI, VII), Gifu (VII); Akita.

24. *Blatta orientalis* LINNAEUS

Syst. Nat., (X) I, p. 424 (1758).

Hab.: Japan—Yokohama, Nagasaki.

XII. Genus *Homalophilpha* STÅL.

Bih. Svensk. Akad., II (13), p. 13 (1875).

25. *Homalophilpa gaudens* SHELFORD

Gen. Ins. Blattinae, p. 19 (1910).

Hab.: Formosa—Horisha (II), Hosan (V), Musha (V. VI), Kosempo (II);
Tonkin.XIII. Genus ***Stylopyga*** FISCHER VON WALDHEIM

Orth. Ross., p. 68 (1846).

26. *Stylopyga rhombifolis* STOLL

Spect. Blatt., p. 5, pl. 3d, fig. 13 (1813).

Periplaneta histrio, SAUSSURE, REV. Zool., (2) XVI., p. 318 (1864).*Periplaneta decorata*, BRUNNER VON WATTENWYL, Syst. Blatt., p. 224 (1865).*Polyzosteria heterospila*, WALKER, Cat. Derm. Salt. B. Mus., V., Suppl. Blatt., p. 35 (1871).

Hab.: Formosa—Taihoku (VI); Cosmopolitan.

XIV. Genus ***Platyzosteria*** BRUNNER VON WATTENWYL

Nov. Syst. Blatt., p. 204 (1868)

Melanozosteria, STÅL, Bih. Svensk. Akad., II., (13), p. 13 (1874).*Syntomaptera*, TEPPER, Trans. Roy. Soc. S. Austral., XVII., p. 106 (1893).*Drymaplaneta*, TEPPER, Trans. Roy. Soc. S. Austral., XVII., p. 109 (1893).**27. *Platyzosteria nitida* BRUNNER VON WATTENWYL**

Syst. Blatt., p. 214 (1865).

Hab.: Formosa (?); Malay Archipelago, New South Wales.

XV. Genus ***Cutilia*** STÅL

Oefv. Vet.-Akad. Förh., XXXIV, no. 10, p. 36 (1877).

28. *Cutilia soror* BRUNNER VON WATTENWYLSyst. Blatt., p. 219 (*Platyzosteria*) (1865).*Platyzosteria semicincki*, WALKER, Cat. Blatt. B. Mus., p. 140 (1868).

Hab.: Formosa—Koshun (VIII); China (Hainan), Borneo, Austro-malayan, Melanesian and Polynesian Islands.

XVI. Genus ***Dorylaea*** STÅL

Oefv. Vet.-Akad. Förh., XXXIV, no. 10, p. 36 (1877).

29. *Dorylaea flavicincta* DE HAAN

Temminck, Verhand. Orth., p. 50 (1842).

Methana zehntneri, KIRDY, Ann. M. Nat. Hist., (7) XII., p. 374 (1903).

Subfamily *EPILAMPRINAE* SHELFORDGen. Ins. *Ectobinae*, p. 1 (1910).

Key to the Japanese genera

1. Posterior metatarsus armed with spines beneath only at the base, its pulvillus produced towards the base of the joint. Tegmina and wing reduced to squamiform rudiments.
 *Opisthoptatia*, BRUNNER VON WATTENWYL
- 1¹. Posterior metatarsus armed with spines beneath throughout the greater part of its length, its pulvillus only on the apex. Tegmina and wing of the both sexes exceeding the abdominal end.
 *Epilampra*, BURMEISTER

XVII. Genus *Opisthoptatia* BRUNNER VON WATTENWYL

Syst. Blatt., p. 198 (1865).

30. *Opisthoptatia orientalis* BURMEISTERHandb. Ent., II., p. 482 (*Polyzosteria*) (1838).*Nympha aptera* (pt.), STOLL, Spect. Blatt., p. 8, pl. 5d, fig. 25 (1813).*Polyzosteria pictetiana*, SAUSSURE, Mém. Soc. Gen., XVII., p. 131, pl. 1, fig. 1 (1863).*Opisthoptatia maculata*, SHIRAKI, Annot. Zool. Jap., VI., pt. 1, p. 32, pl. II, fig. 4 (Larva) (1906).XVIII. Genus *Epilampra* BURMEISTER

Handb. Ent., II., p. 504 (1838).

Poeciloderrhis, STÅL, Bih. Svensk. Vet.-Akad. Handl., II. (13), p. 12 (1874).*Heterolampra*, KIRBY, Ann. M. Nat. Hist., (7) XII., p. 276 (1903).

Key to the Japanese species

1. Posterior metatarsus about as long as the remaining joints together.
2. Subgenital lamina of the male rounded behind.
3. Rather broad species. Supra-anal lamina of the female with broad and rounded lobes, of the male not producing behind the subgenital lamina. Tegmina more or less marmorate.
 *karnyi*, n. sp.
- 3^a. Rather slender species. Supra-anal lamina of the female with somewhat triangular lobes, of the male distinctly but a little producing behind the subgenital lamina. Tegmina minutely punctate, with the scapular area distinctly yellowish white.
 *humeralis*, n. sp.
- 2². Subgenital lamina of the male emarginate in the middle of posterior margin.
3. Supra-anal lamina of the male slightly emarginate behind, and with very short somewhat triangular lobes. Pronotum with the lateral borders distinctly transparent. Tegmina marmorate
 *cribellata*, STÅL
- 3³. Supra-anal lamina of the male distinctly emarginate behind, and with distinct rounded lobes. Pronotum not distinctly transparent at the lateral borders, where it is rather dull-coloured. Tegmina punctate or maculate.
 *punctata* BRUNNER VON WATTENWYL
- 1¹. Posterior metatarsus much longer than the remaining joints together. Subgenital lamina of the male slightly rounded behind; supra-anal lamina of the male very slightly sinuate behind. Pronotum

in the greater part of the middle black, the lateral borders being more or less transparent. Tegmina distinctly punctate. *guttigera* SHIRAKI

31. *Epilampra guttigera* SHIRAKI

Annot. Zool. Jap., VI., pt. 1, p. 21, pl. II, fig. 7 (1906).

Hab.: Japan—Kiushu.

Type in the Entomological Museum of Hokkaido Imperial University, Sapporo, Japan.

32. *Epilampra cribellata* STOL.

Oefv. Vet.-Akad. Förh., XXXIV. 10, p. 34 (1877).

Hab.: Formosa—Kotosho (III, VIII); Philippines.

33. *Epilampra punctata* BRUNNER VON WATTENWYL

Syst. Blatt., p. 173 (1865).

Epilampra formsana, SHIRAKI, Trans. Sapporo Nat. Hist. Soc., I., pt. 2, p. 3 (1906).

Hab.: Formosa—Koshun (IV, V, VII), Kankau (IV), Taito (II, III), Shinchiku (VII), Taihorin (IX); Japan—Okinawa (VIII); Ceylon.

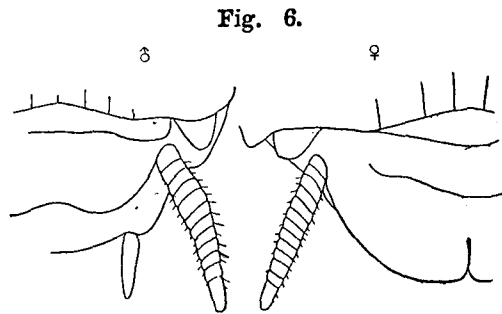
35. *Epilampra karnyi* n. sp. Fig. 6.

Morphna maculata, KARNY (nec BR. v. W.), Suppl. Ent., IV., p. (1905).

This species somewhat allied to *Morphna maculata*, BR. v. W., but it is easily distinguished from the latter by its armed posterior metatarsus, by the narrowly rounded apex of tegmina, and by the pronotum which is much produced behind. Very closely allied to *guttigera*, m., but distinguished by the comparatively much produced posterior margin of pronotum and by the comparatively short posterior metatarsus, as well as by the comparatively long and marmorate tegmina.

♂ ♀. A large, light castaneous species. Head moderate in size; vertex not covered by pronotum, yellowish brown to light yellow; face in the greater part of the middle castaneous; antennae brown to dark brown. Pronotum triangularly produced behind, broadest in the middle, a little broader than long, the anterior half being semi-circular and the lateral margins right-angularly rounded; yellowish brown or reddish brown, more or less black punctate, with a }-shaped black or blackish mark in the middle, the lateral borders in the male almost always transparent, the posterior border with numerous fine black more or less radiate stripes, but in some specimens the posterior third blackish with some paler spots. Tegmina very much exceeding the anal end, with broad scapular area, light yellowish or reddish yellow, distinctly brownish or blackish marmorate but on the scapular area more or less maculate. Wings yellowish

brown on the anterior part, and very slightly brownish on the posterior part, a little shorter than tegmina. Abdomen yellowish brown to brown, the ventral side distinctly paler, of the male oblong but of the female oval; supra-anal lamina of the male not exceeding the subgenital lamina, transverse, the posterior margin being moderately concave, with the slightly rounded lateral angles, of the female distinctly exceeding the subgenital lamina (last ventral segment), the posterior margin incised and with broadly rounded lobes; subgenital lamina of the both sexes rounded behind; styles of the male lanceolate, yellowish. Legs yellowish brown to brown; posterior metatarsus of the both sexes about as long as the remaining joints together, armed with spines beneath throughout the whole length, its pulvillus apical and very small.



Epilampra karnyi. \times ca 4.
Dorsal view of abdominal end.

Length:	♂	♀
Body	30-33 mm	39-41 mm
Pronotum	7.5-8.0	10-11.5
(width)	8.5-10.5	13-14.5
Tegmina	34-36	38-40
Post. femur	8.0-8.5	10-10.5
Post. tibia	11-12	14.5-15.5
Post. tarsus	6.5-7	8.5-10

The specimens from Formosa determined by KARNY, as *Morphna maculata*, are not *Morphna*, but they are real *Epilampra*.

Hab.: Formosa—Taihorin (VI), Karenko (VII, VIII), Taihoku (VII), Koshun (XI), Fuhosho (VII), Sokutsu (V), Yamano-Taiko (X), Taihanroku (XI).

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

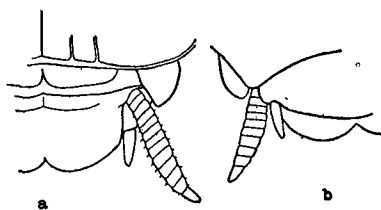
35. *Epilampra humeralis*, n. sp. Fig. 7.

A light dirty yellowish, elongate species; allied to *punctata*, BR. v. W., but distinguished by the coloration and by the rounded subgenital lamina of the male.

♂ ♀. Head light yellow, with vertex brown, the latter not covered by

pronotum. Pronotum broadest a little before the middle, the posterior margin produced behind, so that there is a somewhat triangular median lobe, the lateral bases of this lobe being often distinctly sinuate. Tegmina rather narrow, very much exceeding the anal end, brown, very indistinctly maculate; scapular area very pale, more or less transparent, with a distinct blackish humeral streak

Fig. 7.

*Epilampra humeralis*. ♂. × ca. 4.

Dorsal (a) and ventral (b) views of anal end.

which is about $\frac{1}{3}$ as long as the whole length of tegmina. Wings nearly uniformly brown. Abdomen yellowish white, but on the dorsum brown, of the male oblong and of the female oval; subgenital lamina of the male rounded behind, and with somewhat transparent styles, which are not sharply pointed, of the female large, the posterior margin very slightly convex in the middle; supra-anal lamina of the male about twice as wide

as long, slightly emarginate behind in the middle, with broadly rounded lobes, slightly exceeding the subgenital lamina, of the female deeply emarginate behind, with narrowly rounded lobes, very much exceeding the subgenital lamina; cerci dirty yellow, but on the dorsal side blackish, of the male very narrow and long, but of the female being short and broad. Legs light yellow, rather slender; femora armed with short spines beneath; posterior metatarsus of the both sexes about as long as the remaining joints together, armed with spines beneath throughout the nearly whole length, and with very small apical pulvillus.

Length:	♂	♀
Body	25-26 mm	28-33 mm
Pronotum	6-6.5	7.5-8
(width)	8-8.5	10.5-11
Tegmina	28-29	35-36
Post. femur	6-6.5	7.5-8
Post. tibia	9.5-10	10.5-11.5
Post. tarsus	6-6.5	7.5-8

Hab.: Formosa—Shinten (VIII), Taihoku (VI-VII); Tonkin—(two males preserved in Nat. Hist. Mus., Berlin).

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

Subfamily *PHYLLODROMIINAE* SHELFORD

Gen. Ins., Ectobiinae, p. 1 (1908).

Key to the Japanese genera

1. Ulnar vein of wings not sending branches to dividing vein.
2. Depressed insects.
 3. Apical triangle of wings absent or not prominent. *Phyllodromia*, SERVILLE
 - 3². Apical triangle of wings prominent and reflected. *Lapparia*, WALKER
- 2². Convex insects. *Liosipha*, STÅL
- 1¹. Ulnar vein of wings sending branches to dividing vein. *Ischnoptera*, BURMEISTER

XIX. Genus *Ischnoptera* BURMEISTER

Handb. Ent., II., p. 500 (1838).

Platamodes, SCUDDER, Boston Journ. Nat. Hist., VII., p. 417 (1862).

Key to the Japanese species

1. Tegmina exceeding the abdominal end.
2. Pronotum nearly uniformly coloured.
3. Supra-anal lamina of the female not sinuate behind.
4. Ulnar vein of wings ramose.
5. Small species, less than 15 mm long.
6. Subgenital lamina of the male strongly asymmetrical; supra-anal lamina of the female rounded behind. *schenklingi*, KARNY
- 6⁶. Subgenital lamina of the male subtriangularly produced behind; supra-anal lamina of the female obtusely produced behind.
7. Styles small, rounded at the tip and furnished with rather long hairs. *formosana*, SHIRAKI
 (= *modestiformis*, KARNY)
- 7⁷. Styles very small, spine-like *yashiroi*, sp. nov.
- 5⁵. Rather large species, more than 15 mm long. Subgenital lamina of the male strongly asymmetrical, with two jointed and sharply pointed styles; supra-anal lamina of the female subtriangularly produced behind *australis*, SAUSSURE
- 4⁴. Ulnar vein of wings bifurcate and with one or two short branches ending at dividing vein. *furcata*, n. sp.
- 3³. Supra-anal lamina of the female subtriangularly produced behind, and very slightly sinuate at the tip.
4. Posterior metatarsus about twice as long as the following three joints together; pronotum comparatively large.
5. Supra-anal lamina of the female triangularly but very shallowly emarginate at the posterior apex; tegmina very long. *yoshinoe*, n. sp.
- 5⁵. Supra-anal lamina of the female very indistinctly sinuate behind, and with a very minute pointed process in the middle of posterior margin; tegmina very slightly exceeding the abdominal end. *brevielytra*, var. n.
- 4⁴. Posterior metatarsus about 1½ times as long as the following 3 joints together; pronotum comparatively small; supra-anal lamina of the male asymmetrical. *asymmetrica*, n. sp.
- 2². Pronotum with blackish marking.
3. Pronotum with two blackish brown or castaneous longitudinal stripes.
4. More than 10 mm long. Two stripes of pronotum rather broad, but not well-defined, distinctly

- widened outwards in the middle *multiramosa*, BRUNNER VON WATTENWYL
- 4¹. Less than 10 mm long. Two stripes of pronotum very narrow, nearly parallel, rather far apart from each other *sauteri*, KARNY
- 3³. Pronotum black, with yellow lateral borders; supra-anal lamina of the both sexes distinctly triangularly emarginate behind; subgenital lamina of the male more or less asymmetrical, with two depressed, rather broad but pointed styles *striata*, SHIRAKI
- 1¹. Tegmina not exceeding the abdominal end; pronotum without blackish marking; reddish yellow species.
2. Supra-anal lamina of the female triangular, pointed behind, furnished with long bristle-like hairs along the posterior margin; tegmina not reaching to the anal end. *acuminata*, n. sp.
- 2². Supra-anal lamina of the female triangular, but not pointed, rather rounded at the apex, with some bristles along the apical margin, and also with some very short radiate folds along the posterior margin of the dorsum; tegmina reaching to the anal end. *testacea*, SHIRAKI

36. *Ischnoptera schenklingi*, KARNY

Suppl. Ent., IV., p. 101 (1915).

Hab.: Formosa—Koshun (IV, V), Taihorin (VII), Horisha (V, VIII).

37. *Ischnoptera formosana*, SHIRAKI

Trans. Sapporo Nat. Hist. Soc. Jap., II., pt. 1-2, p. 107 (*Phyllodromia*) (1908).

Ischnoptera modestiformis, KARNY, Suppl. Ent., IV., p. 101 (1915).

Hab.: Formosa—Tainan (V), Taihanroku (IX), Toroyen (IV), Horisha (V, VIII).

Type in the Entomological Museum of Hokkaido Imperial University, Sapporo, Japan; of KARNY in the Entomological Institute of Kaiser Wilhelm Gesellschaft, Berlin-Dahlem.

38. *Ischnoptera australis*, SAUSURE

Mém. Soc. Sc. Phys. Nat. Gen., XVII., p. 155, pl. 1, fig. 17 (1863).

Periplaneta apicalis, WALKER, Cat. Blatt. B. Mus., p. 129 (1868).

Hab.: Formosa—Shinchiku (VII). Taihorin (V); Australia.

39. *Ischnoptera furcata*, n. sp. Fig. 8.

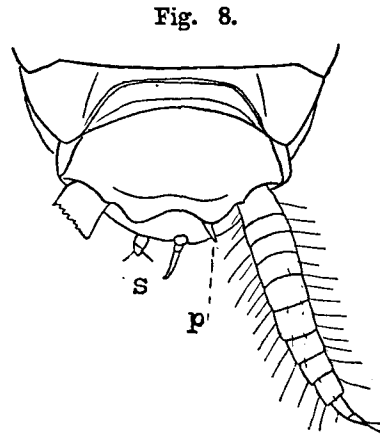
Closely allied to *schenklingi*, KARNY, but differs as follows:

Ulnar vein of wings bifurcate and with only one or two very indistinct branches ending at dividing vein; subgenital lamina of the male less asymmetrical, the left style being rather broad, pointed and much less chitinized (in *schenklingi* strongly chitinized and with about 3 or 4 minute spines at the tip), the right style on the middle of posterior margin being very fine (in *schenklingi* very far apart from the left one and composing of 3 isolated spine-like processes); posterior metatarsus about as long as remaining joints together.

Length:	♂	♀
Body	13 mm	13 mm
Pronotum	4	3
(width)	5	3.7
Tegmina	16	12
Post. femur	5	3.8
Post. tibia	6.5	5
Post. tarsus	5.5	4

Hab.: Formosa—Horisha (V), Taihorin (III).

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

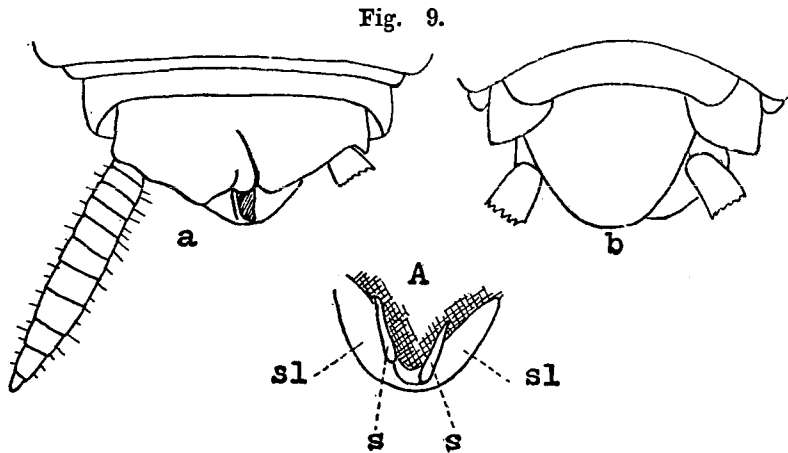


40. *Ischnoptera yoshinoe*, n. sp. Fig. 9.

Very closely allied to *australis*, but it differs from that as follows:

♂ ♀. Pronotum of male less circular, but of female much circular and very much smaller; vertex between the eyes less broad; posterior metatarsus about twice as long as the following three joints together, very narrow and very slightly widened towards the tip (in *australis* strongly narrowed only at the base); subgenital lamina of male on the posterior margin with a pair of

Ischnoptera furcata. ♂. × ca 8
Dorsal view of anal end.
s—Styli, p—Penis.



Ischnoptera yoshinoe. ♂. × ca 8.
Dorsal (a) and ventral (b) views of anal end.
A. Dorsal view of subgenital lamina, showing the lobes (sl) and the styli (s).

peculiar lobes which are folded at their bases toward the dorsal side, along the inner margin of each the lobes there is a spine-like styles, the styli are nearly

symmetrical and are directed forwards on the dorsal surface, of female very slightly rounded behind; supra-anal lamina of male asymmetrical and peculiarly folded in the posterior margin, of female distinctly sinuate at the apex, with a rather distinct longitudinal furrow on the apical dorsum; ulnar vein of wings with two (♀) or three (♂) branches ending the apical margin, and with only one to three branches ending at the dividing vein.

Length:	♂	♀
Body	16 mm	16 mm
Pronotum	4.4	4.2
(width)	5.2	5
Tegmina	17	17
Post. femur	5.5	4.5
Post. tibia	7.1	6.5
Post. tarsus	5	4

One male and two females from Formosa (Koshun IV), collected by Mr. Y. YOSHINO.

var. *brevielytra* n.

♀. Tegmina short, a little exceeding the anal end; supra-anal lamina very indistinctly sinuate behind and with a minute pointed process in the middle of the situation.

Length:	♀
Body	15 mm
Pronotum	3.7
(width)	4.5
Tegmina	13
Post. femur	4.1
Post. tibia	5.5
Post. tarsus	3.5

Only one female from Formosa (Horisha V).

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

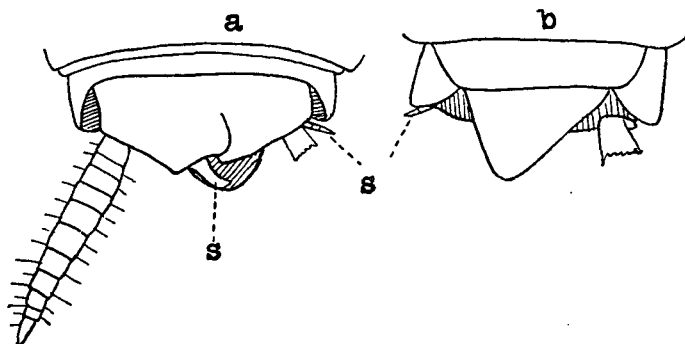
41. *Ischnoptera asymmetrica*, n. sp. Fig. 10.

A medium-sized, brownish species: closely allied to *yoshinoe*, but differs mainly in the subgenital plate of male, as well as in the form and position of its styli.

♂ ♀. Head medium-sized, not entirely covered by pronotum, castaneous, vertex of the male distinctly narrower than in the female; antennae much longer

than body, dark brown to brown; mouth part paler. Pronotum distinctly broadened behind, with more or less obtusely angled behind, dark castaneous but in the male somewhat paler, with yellowish lateral borders. Abdomen

Fig. 10.



Ischnoptera asymmetrica. ♂. × ca 8.

Dorsal (a) and ventral (b) views of anal end. s—Styli.

blackish brown but in the male paler, the ventre in the both sexes paler than the dorsum; supra-anal lamina of the male asymmetrical, broad, shorter than long, with a distinct S-shaped longitudinal median furrow and also with a triangular lobe on the left half of posterior margin; of the female subtriangularly produced, the apex being slightly sinuate, with a distinct longitudinal median furrow which is not extending to the base, but on the base there is another small triangular furrow; subgenital lamina of the male strongly asymmetrical, with two styles minute, sharp pointed, one about in the middle and other at the left base, of the female strongly rounded behind; cerci moderate in length. Tegmina yellowish castaneous, with scapular area light yellowish or light reddish yellow; wings blackish brown, without apical triangle, ulnar vein with two or three very long branches ending at the apex and 3 or 4 short ones reaching to dividing vein. Legs light yellow to light reddish yellow; posterior metatarsus narrow, about $1\frac{1}{2}$ time as long as the following 3 together.

Length:	♂	♀
Body	12 mm	12-13 mm
Pronotum	3.4	3.5-3.6
(width)	4.4	4.5-4.6
Tegmina	15	13-14.5
Post. femur	4.1	4.5-4.6
Post. tibia	5.5	5-5.5
Post. tarsus	4	4-4.1

Hab.: Formosa—Toroen (IV), Musha (V), Shinchiku (VII).

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

42. *Ischnoptera multiramosa*, BRUNNER VON WATTENWYL

Ann. Mus. Stor. Nat. Gen., XXXIII., p. 23, pl. 1, fig. 8 (1893).

Hab.: Formosa—Horisha (V), Shinchiku (VII), Taihorin (V), Hosan (X), Karenko (VII, VIII), Taihoku (IX).

43. *Ischnoptera scuteri*, KARNY

Suppl. Ent., IV., p. 102 (1915).

Hab.: Formosa—Ampin (VII), Taihorin (VI), Kankau (IV).

44. *Ischnoptera striata*, SHIRAKI

Annot. Zool. Jap., VI., pt. 1, p. 27, pl. II, fig. 5 (*Periplaneta*) (1906).

Addition to the original description is as follows:

Yellow lateral borders of pronotum often very broad on the posterior half; tegmina mostly conspicuously exceeding the end of abdomen; ulnar vein of wings with 4 or 5 branches, of which 2 or 3 are reaching to dividing vein; subgenital lamina of the male distinctly asymmetrical, with a small depressed style which is suddenly pointed at the tip, and with one narrow strongly curved and pointed other; of female very large, strongly convex behind; supra-anal lamina of the male very slightly emarginate behind; of the female subtriangular and slightly sinuate at the apex, in the both sexes with a distinct longitudinal furrow on the dorsum from the base to the apex; posterior metatarsus a little longer than the remaining joints together, very slender.

Hab.: Formosa—Karenko (IV); Japan—Kumamoto (VI), Ehime (VI), Kagoshima (VII).

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

45. *Ischnoptera testacea*, SHIRAKI

Pseudophyllodromia testacea, SHIRAKI, Trans. Sapporo Nat. Hist. Soc., II., pt. 1-2, p. 108 (1908).

♀. Ulnar vein of wings with 3 branches, of which only one is ending at the dividing vein; supra-anal lamina subtriangular, the apex distinctly but narrowly rounded and furnished with a row of about 10 rather long bristles. ♂ not known.

Hab.: Japan—Kumamoto (VI).

Type in the Entomological Museum of Hokkaido Imperial University, Sapporo, Japan.

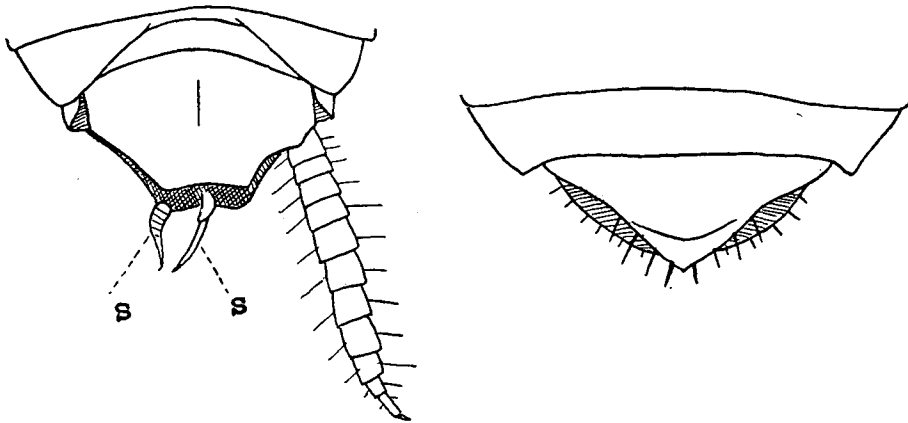
46. *Ischnoptera acuminata*, n. sp. Fig. 11.

Very closely allied to the preceding species, but differs as follows:

♀. Head entirely covered by pronotum; tegmina not reaching to the end of abdomen; supra-anal lamina distinctly pointed at the apex and with two rows of bristle-like hairs on the margin, the hairs of one row being horizontal and of other nearly perpendicular below; subgenital lamina comparatively long, with a small but distinct rounded lobe at the lateral bases, this lobe in *testacea* very indistinct and very slightly curved outwards.

♂. Subgenital lamina of male asymmetrical, the styles in the middle of

Fig. 11.



Ischnoptera acuminata. ♂ ♀. × ca 8.
Dorsal view of anal end. s—Styli.

posterior margin with a very sharply pointed apical spine, the right style being very strongly curved outwards at its base and placed right angularly with the left one; supra-anal lamina emarginate behind.

Length:	♂	♀
Body	16.5 mm	15 mm
Pronotum	4.5	4.2
(width)	5.5	5
Tegmina	12	11
Post. femur	5.5	5.5
Post. tibia	6.5	6.5
Post. tarsus	?	5.7

Hab.: Formosa—Taito (III), Musha (V).

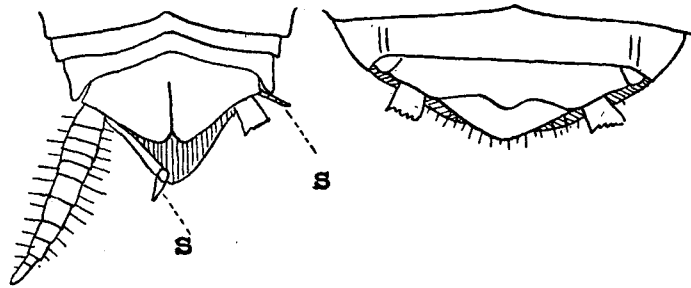
Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

47. *Ischnoptera yashiroi*, sp. nov. Fig. 12.

Rather small species: closely allied to *formosana* (= *modestiformis*, KARNY), but easily distinguished by only two branches of ulnar vein, which are reaching to the wing-margin, as well as by the right stylus placed at the extreme right basal angle of the subgenital plate.

♂ ♀. Pale testaceous. Pronotum comparatively long, the posterior margin

Fig. 12.



Ischnoptera yashiroi. ♂ ♀. × ca 8.
Dorsal view of anal end. s—Styli.

slightly obtuse-angulate. Antennae and cerci pale fuscous, with the base yellowish, the latter being about $1\frac{1}{2}$ times as long as the subgenital plate. Tegmina exceeding outwards the abdominal apex. Wings distinctly shorter than tegmina; ulnar vein with two branches which are ending on the wing-margin; and with one conspicuous and 2 or 3 inconspicuous branches for the dividing vein. Hind femora on the intero-inferior margin with 5 (♂) or 6 (♀) spines, and on the outero-inferior margin with 6 (♂) or 7 (♀) spines; posterior metatarsi very slender, shorter than $1\frac{1}{2}$ times the length of the following joints together. Supra-anal plate of male much broader than long, the posterior margin somewhat obtuse-angulate but the tip distinctly emarginate, the dorsal surface with a distinct longitudinal sulcus; of female transverse-triangular, the tip being slightly rounded, the posterior margin furnished with some short bristle-like hairs, in the middle there is a undulate transverse carina. Subgenital lamina of male very much exceeding hindwards the supra-anal lamina, nearly triangular, about as long as wide, the left half of the posterior margin narrowly reflexed above, the left stylus on nearly the middle is very short and somewhat conical, while the right stylus is rather long bristle-like and is placed on the extreme right end of the basal margin; of female not reaching to the end of the supra-anal lamina, with round apical margin.

Length:	♂	♀
Body	13 mm	13 mm

	♂	♀
Pronotum	3 mm	3.5 mm
Width of Pronotum	4	4.5
Tegmina	11.5	12
Post. femur	3.5	3.5
Post. tibia	4.5	5
Post. tarsus	3.7	4.5

One pair (Types) collected by Mr. H. YASHIRO in Okinawa (V), preserved in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

XX. Genus *Liosilpha* STÅL

Bih. Svensk. Akad., II (13), p. 10 (1874).

48. *Liosilpha japonica*, SHELFORD

Ann. M. Nat. Hist., (7) XIX., p. 33 (*Phyllodromia* ?) (1907).

Hab.: Japan—Okinawa, Oshima.

XXI. Genus *Lupparia* WALKER

Cat. Blatt. B. Mus., p. 65 (1868).

Pseudectobia, SAUSSURE, Mém. Soc. Sc. Phys. Nat. Gen., XX., p. 234 (1868).

49. *Lupparia nigra*, SHIRAKI

Trans. Sapporo Nat. Hist. Soc. Jap., 2., pt. 1-2, p. 109 (*Chorisoneura*) (1908).

Hab.: Formosa—Horisha (V, VIII); Japan.

Type in the Entomological Museum of Hokkaido Imperial University, Sapporo, Japan.

XXII. Genus *Phyllodromia* SERVILLE

Hist. Ins. Orth., p. 105 (1839).

Mareta, BOLIVAR, Ann. Soc. Ent. Fr., p. 369 (1895).

Key to the Japanese species

1. Pronotum yellowish, without distinct blackish stripes.
2. Pronotum nearly uniformly coloured, of course the lateral borders being paler and transparent.
3. Tegmina not reticulate.
4. Less than 10 mm long.
5. Wings yellowish; cerci yellowish.
6. Supra-anal lamina of the female distinctly transverse and not emarginate; ulnar vein of

- wings with 3 long branches; abdomen with broad black lateral longitudinal stripe on the ventre *kumamotoensis*, n. sp.
- 6⁶. Supra-anal lamina of the female sharply emarginate; ulnar vein of wings with 4 branches; abdomen uniformly coloured on the ventre; subgenital lamina of the male symmetrical, with very short styles, which are aciniform at the tip. ... *kotoshoensis*, n. sp.
- 5⁵. Wings blackish; cerci black, with a yellowish ring. *flavomarginata*, n. sp.
- 4⁴. More than 10 mm long. Ulnar vein of wings with 4 branches; supra-anal lamina of the both sexes rather transverse and slightly sinuate in the middle of posterior margin; subgenital lamina of the male very broad, strongly concave behind, with two very short but strongly chitinized styles, each at the tip of narrow lateral lobes and distinctly but very minutely toothed on the inner margin *vilis*, BRUNNER VON WATTENWYL
- 3³. Tegmina yellowish brown or brown, distinctly reticulate with pale yellow colour. Less than 10 mm long. Wings with distinct but small apical triangle; ulnar vein with only two branches. Supra-anal lamina of the female trapezoid. *ogatai*, n. sp.
- 2². Pronotum with irregular small blackish brown spots on the median area.
3. More than 10 mm long. Tegmina brown, with yellowish reticulation, and with yellowish scapular area; subgenital lamina of the male rather asymmetrical, with one pair of lateral and a long median processes, of which the lateral pair is furnished with a very minute style. *notulata*, STÅL
- 3³. Very small species, less than 10 mm long. Tegmina uniformly light yellow; subgenital lamina of the male symmetrical, with comparatively long less chitinized styles. ... *punctulata*, n. sp.
- 1¹. Pronotum yellowish, with two black longitudinal stripes or a very large blackish median area.
2. Pronotum with two black stripes.
3. Small species, less than 12 mm long; the stripes of pronotum narrow.
4. Supra-anal lamina of the male very long subtriangular, of the female very short subtriangular *lituricollis*, WALKER
- 4⁴. Supra-anal lamina of the male very long but subquadrate, of the female short triangular with rather pointed tip... .. *germanica*, LINNAEUS
- 3³. Medium-sized species, not less than 12 mm long; the black stripes of pronotum very broad.
4. Subgenital lamina of the female sharp triangularly emarginate at the apex; the black stripes of pronotum well-defined *humbertiana*, SAUSSURE
- 4⁴. Subgenital lamina of the female rounded and not emarginate behind; the black stripes of pronotum not well-defined. *niitakana*, n. sp.
- 2². Pronotum blackish brown, with broad yellowish lateral margin; tegmina yellow, with a large reddish brown basal spot and also a small oblique paler band; wings light yellow. *supellectilium*, SERVILLE

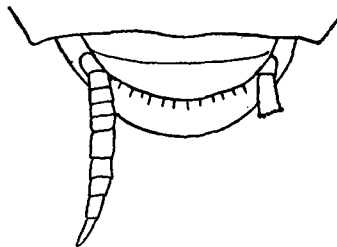
50. *Phyllodromia kumamotoensis*, n. sp. Fig. 13.

A small, brownish species, distinguished by transparent tegmina and lateral borders of pronotum, and by broadly black-margined ventral sides of abdomen. Allied to *vilis*, but differs in only three branches of the ulnar vein of wings and in the non-sinuate supra-anal lamina of female.

♀. Vertex not entirely covered by pronotum, with two dark brown transverse bands, one between the eyes and the other between the upper bases of antennae; pronotum slightly convex behind; abdomen irregularly maculate, with a dark brown colour on the dorsum; the ventre with a very large black spot on the lateral margins of sternites, this spot not extending to the lateral

extremities and to the posterior margin of sternites; supra-anal lamina blackish brown with a yellow large median spot, rather transverse, moderately rounded behind, the posterior margin furnished with a row of some short yellow bristles; subgenital lamina large, strongly convex and the apex moderately depressed from side to side; cerci brown, with the tip yellowish. Legs light yellowish, femora moderately spined beneath. Tegmina semi-transparent, light yellow, with distinctly transparent scapular area. Wings an indistinct apical area; scapular vein bifurcate, the extremities distinctly swollen; costal veins 9, of which the basal 5 are strongly swollen at their extremities, and the apical 3 are furcate; ulnar vein with only 3 branches; somewhat brownish, with the swollen extremities of veins reddish brown.

Fig. 13.

*Phyllodromia kumamotoensis.*

♀. × ca 8.

Dorsal view of anal end.

Length:	♀
Body	9 mm
Pronotum	2.5
(width)	3.5
Tegmina	7.5
Post. femur	2.5
Post. tibia	3
Post. tarsus	ca. 3

Hab.: Japan—Kumamoto (VIII).

The male is not known.

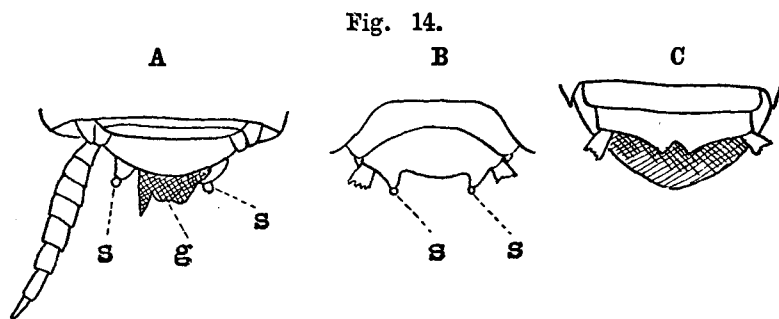
Type in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

51. *Phyllodromia kotoshoensis*, n. sp. Fig. 14.

A small, pale yellowish species, somewhat allied to the preceding, but easily distinguished from that by the uniformly pale coloured abdomen, as well as by the distinctly emarginate supra-anal lamina of female; rather near to *vilis*, but mainly differs in the subgenital plate of male.

♂ ♀. Head pale reddish yellow, without marking; pronotum about twice as broad as long, the posterior margin nearly straight with the rounded lateral angles, the lateral borders transparent; abdomen pale reddish yellow, without blackish marking, but the dorsum sometimes very indistinctly brown maculate; supra-anal lamina not produced behind the subgenital lamina, of the female

strongly emarginate behind and with two distinct subtriangular lobes, of the male very slightly emarginate and the lateral angles rounded; subgenital lamina of the female very large as in *kumamotois*, m., of the male twice broadly but



Phyllostromia kotoshensis. \times ca 8.
A=Dorsal of δ anal end; B=Postero-ventral of do; C=Dorsal view of φ anal end.
s—Styli, g—Genitalia.

slightly sinuate behind, somewhat asymmetrical, two styles very minute and placed at the tip of the somewhat pointed lateral lobes, on the extremities of styles there are two or three very minute teeth (in *vilis* there are many teeth along the whole inner-side of styles). Wings uniformly light yellow, the marginal area comparatively very broad, with 8 costal veins, of which 6 to 8 are furcate; anterior ulnar vein multi-ramose, posterior one simple; axillary area with 4 veins. Wings hyaline, with somewhat brownish veins, the apical triangle indistinct; scapular vein bifurcate; costal veins 6, of which the apical two are furcate; ulnar vein with 4 branches. Legs light yellowish or pale reddish yellow; front femora furnished with only 3 or 4 short spines beneath.

Length:	δ	φ
Body	7.5-8 mm	8-8.5 mm
Pronotum	2.1-2.2	2.4-2.5
(width)	3.5-3.6	4-4.2
Tegmina	9-9.1	8
Post. femur	2.7-2.8	2.5
Post. tibia	3.5-3.6	3.3
Post. tarsus	1.8-1.9	1.8

Hab.: Formosa—Kotosho (IV).

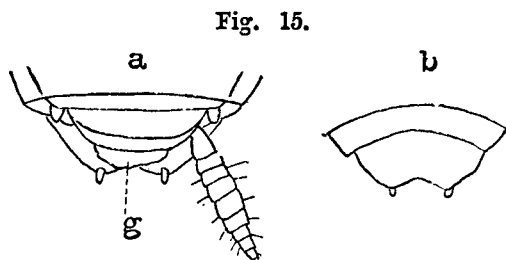
Types in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

52. *Phyllostromia flavomarginata*, n. sp. Fig. 15.

A small, reddish yellow species, distinguished by the strongly depressed

and rather broad head, as well as by blackish wings, abdomen and cerci.

♂. Head about as wide as long, vertex strongly flattened, with two rows of small brown dots, of which the middle one of each row is large and distinct. Pronotum about twice as wide as long, the posterior margin being very slightly convex, with the lateral angles somewhat pointed. Abdomen on the both sides blackish, with yellow margins; cerci black, with one light yellow ring after the middle, the tip also light yellow, each joint furnished with some short but distinct bristle-like hairs, and also with numerous long hairs on the ventral side; supra-anal lamina transverse, moderately convex behind, with broadly deflexed posterior margin black; subgenital lamina rather small, triangularly emarginate behind, and with two very short conical yellow styles, one on the tip of each subtriangular lobes. Tegmina pale orange-yellow, the posterior border very slightly infuscate; costal veins 10, the apical two furcate; anterior ulnar vein multi-ramose, posterior one simple; axillary area with 4 veins. Wings blackish, with the narrow marginal border orange-yellow; apical triangle very small; scapular vein bifurcate; costal veins 9, the basal 6 S-like curved and distinctly swollen at their extremities; ulnar vein with 4 branches. Legs light yellowish, as in *kotoshoensis*, m.



Phyllodromia flavomarginata. ♂. × ca 8.
Dorsal (a) and ventral (b) views of anal end.
g—Genitalia.

Length :	♂
Body	9 mm
Pronotum	2.5
(width)	4.5
Tegmina	8

Hab.: Formosa—Kotosho (IV).

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

53. *Phyllodromia vilis*, BRUNNER VON WATTENWYL

Syst. Blatt., p. 103 (1865).

Phyllodromia pallidiola, SHIRAKI, Annot. Zool. Jap., VI, pt. 1, p. 20. pl. II, fig. 1 (1906).

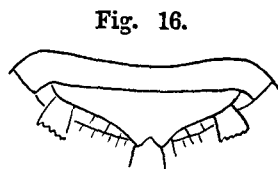
Hab.: Formosa—Rikiriki (III), Kankau (IV), Teraso (II), Koshun (IV, V), Kotosho (VII), Taito (II, III), Taihoku (I), Taihorin (VII), Ako (II); Japan—Kagoshima (VII), Ogasawara (VIII); Malacca.

54. *Phyllodromia ogatai*, n. sp. Fig. 16.

Small reddish yellow species; closely allied to *notulata*, STÅL, but differs as follows:

♀. Pronotum without black dots, the anterior margin strongly convex; vertex broad, wider than one-thirds of head; wings hyaline with yellowish veins, with distinct apical triangle which is not pointed at the apex; ulnar vein of wings with only two branches, of which the first one is bifurcate, (in *notulata* with 4 branches); legs not blackish dotted at the base of spines, posterior metatarsus a little longer than the remaining joints together (in *notulata* $1\frac{1}{2}$ times as long as the rest).

In the size or colour very near to *vilis*, but easily distinguished by only two branches of ulnar vein.



Phyllodromia ogatai.
♀. × ca 8.
Dorsal view of anal end.

Length:

	♀
Body	8.5 mm
Pronotum	2.4
(width)	3.5
Tegmina	8.5
Post. femur	2.6
Post. tibia	3
Post. tarsus	2

Only one female from Formosa (Kotosho VII), collected by the late Mr. OGATA.

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

55. *Phyllodromia notulata*, STÅL.

Freg. Eugen. Resa., Ent., p. 308 (1858).

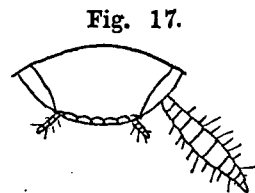
Phyllodromia hieroglyphica, BRUNNEN von WATTENWYL, Syst. Blatt., p. 105 (1865).

Hab.: Formosa—Taihanroku (VIII), Kotosho (VII); Borneo; Java; Tahiti.

56. *Phyllodromia punctulata*, n. sp. Fig. 17.

A small, light yellowish species, with blackish dotted pronotum and legs, as well as with black margined sternites.

♂ ♀. Head nearly entirely covered by pronotum; vertex a little broader than one-thirds of head, with a distinct rather broad black transverse band between the eyes; face with two black transverse bands, which are narrower than that on vertex. Pronotum a little longer than half of width, broadest a little behind the middle,



Phyllodromia punctulata.
♂. × ca 8.
Ventral side of subgenital plate.

the anterior margin nearly straight in the middle two-thirds, and the posterior margin moderately convex, on the median area there are some irregular minute blackish dots, the broad lateral borders transparent with very narrow yellowish edge. Tegmina light yellow, semitransparent; costal veins 8, the apical one divided into 5 branches at the tip; scapular vein simple; anterior ulnar vein with three branches, the posterior one simple. Wings hyaline, with blackish veins; costal veins 8 or 9, the basal 6 distinctly swollen at their extremities, and the apical one or the second (from apex) one divided into 4 branches at the tip; ulnar vein with 3 branches; apical triangle present but small and not pointed. Abdomen blackish maculate on the dorsum, the sternites with a large round black lateral spot, which is not extending to the lateral and posterior margin; subgenital lamina black margined, of the male broad and produced behind, symmetrical, the apical margin nearly straight, at where there are 5 marginal granules on the ventre, near the lateral side there is a distinct curved lateral suture on the ventre; styles placed at the ends of the posterior margin of subgenital plate, light yellow with the basal joint blackish, long and cylindrical, 4-jointed, and furnished with a rather distinct bristle-like hair on the outero-superior side near its tip; of the female very slightly sinuate behind and with a very indistinct longitudinal carina on the ventral side of apical half; supra-anal lamina of the both sexes black, with the base light yellow, rather transverse, the middle of posterior margin very shortly incised; cerci rather broad, blackish or brownish or yellowish. Legs light yellow, black dotted at the base of nearly all the spines; posterior metatarsus a little longer than the remaining joints together.

Length:	♂	♀
Body	6.5 mm	7.5 mm
Pronotum	2.2	2.5
(width)	3.1	3.5
Tegmina	7-8	8
Post. femur	2.5	2.5
Post. tibia	3.2	3
Post. tarsus	2.2	2.1

Hab.: Formosa—Taihoku (V), Shashi (III), Kotosho (IV).

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

57. *Phyllodromia lituricollis*, WALKER

Cat. Blatt. B. Mus., p. 105 (1868).

Blatta colligata, WALKER, Cat. Blatt. B. Mus., p. 221 (1868).

Phyllodromia bisignata, BRUNNER von WATTENWYL, Ann. Mus. Stor. Nat. Gen., XXXIII, p. 15, pl. 1, fig. 1 (1893).

Hab.: Formosa—Arisan (X), Shinchiku (VII), Kagi (I), Tauran (IV), Taihoku (VI), Ampin (VII), Kosempo (VII), Taihorin (IX), Taihanroku (VIII), Horisha (X); China (Amoy); Bhamo; Upper Burma.

58. *Phyllodromia germanica*, LINNAEUS

Syst. Nat. (XII) I (2), p. 668 (*Blatta*) (1767).

Blatta obliquata, DALDORFF, Skriv. Nat. Selsk., II (2), p. 164 (1793).

Phyllodromia bivittata, SAUSSURE, Mém. Mex. Blatt., p. 102 (1864).

Hab.: Cosmopolitan.

59. *Phyllodromia humbertiana*, SAUSSURE

Mém. Soc. Sc. Phys. Nat. Gen., XVII, p. 130 (1863).

Phyllodromia cognata, BRUNNER von WATTENWYL, Syst. Blatt., p. 92 (1865).

Blatta latistrigata, WALKER, Cat. Blatt. B. Mus., p. 106 (1868).

Blatta subreticulata, WALKER, Cat. Derm. Salt. B. Mus., V., Suppl. Blatt., p. 23 (1871).

Hab.: Formosa—Kayahara (IX), Musha (V, VI), Rikiriki (III), Horisha (X), Fuhosho (VII), Banshoryo (XI), Naifumpo (IX); India; China.

60. *Phyllodromia niitakana*, n. sp. Fig. 18.

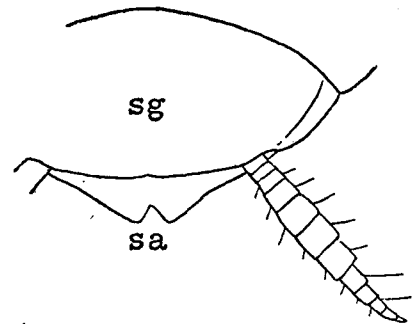
Closely allied to *humbertiana*, SAUSSURE, but differs as follows:

♀. Vertex comparatively narrow, uniformly yellowish brown or castaneous brown; pronotum much rounded, reddish brown with the rather narrow lateral borders yellowish brown, the black median stripes very broad, with the straight inner margin; supra-anal lamina distinctly exceeding the subgenital lamina, triangular, the tip being triangularly incised; subgenital lamina very broad, rather transverse, moderately convex behind, not sinuate; tegmina rather short, uniformly yellowish brown, without blackish transversal striations.

Length:

Body	♀	12.5-13 mm
Pronotum		3.2-3.5
(width)		4.2-4.5
Tegmina		11.5-13

Fig. 18.



Phyllodromia niitakana. × ca 8.

sg—Subgenital plate.
sa—Supra-anal plate.

	♀
Post. femur	3.5-4.2
Post. tibia	5.1-6
Post. tarsus	3.2-4

Hab.: Formosa—Niitaka (VII), Tamaru (IX).

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

61. *Phyllodromia supellectilium*, SERVILLE

Hist. Ins. Orth., p. 108 (*Blatta*) (1839).

Blatta cubensis, SAUSSURE, Rev. Zool. (2) XIV., p. 165 (1862).

Blatta capensis, SAUSSURE, Rev. Zool. (2) XIV., p. 210 (1864).

Blatta phalerata, SAUSSURE, Mém. Soc. Sc. Phys. Nat. Gen., XVII., p. 151, pl. 1, fig. 16 (1864).

Blatta insisa, WALKER, Cat. Blatt. B. Mus., p. 109 (1868).

Blatta extenuata, WALKER, Cat. Blatt. B. Mus., p. 221 (1868).

Ischnoptera quadriplaga, WALKER, Cat. Blatt. B. Mus., p. 121 (1868).

Blatta subfasciata, WALKER, Cat. Derm. Salt. B. Mus., V., Suppl. Blatt., p. 26 (1871).

Blatta transversalis, WALKER, Cat. Derm. Salt. B. Mus., V., Suppl. Blatt., p. 25 (1871).

Blatta figurata, WALKER, Cat. Derm. Salt. B. Mus., V., Suppl. Blatt., p. 24 (1871).

Phyllodromia delta, KIRBY, Ann. M. Nat. Hist., (7) V., p. 280 (1900).

Hab.: Formosa—Shichisei (VIII); Cosempolitan.

Subfamily ECTOBIINAE SHELFORD

Genera Ins., Ectobiinae, p. 6 (1910).

Key to the japanese genera

1. Wings with large reflected apical triangle *Anaplecta*, BURMEISTER
 1¹. Wings without reflected apical triangle *Theganopteryx*, BURMEISTER

XXIII. Genus *Anaplecta* BURMEISTER

Handb. Ent., II, p. 494 (1838).

Riattia, WALKER, Cat. Blatt. B. Mus., p. 66 (1868).

Key to the japanese species

1. Medium-sized, yellowish brown or reddish brown species, more than 5 mm long. Ulnar vein of tegmina multi-ramose, of wings bifurcate.
 2. Branches of ulnar vein of wings connected by at least two transversal venules *rusticollis*, KARNY
 2². Branches of ulnar vein of wings without such venule. *arisana*, n. sp.
 1¹. Small dark brown species, less than 5 mm long. Ulnar vein of tegmina not ramose, but composing of 3 separated veins, of wings simple. *simplex*, n. sp.

62. *Anaplecta ruficollis*, KARNYSuppl. Ent., IV., p. 105 (*Theganopteryx*) (1915).

♂. Rather convex, narrow; allied to *thwaitesi* SHELFORD, but easily distinguished by the number of costal veins, as well as by transversal venules connected the branches of ulnar vein of wings. Head castaneous or yellowish brown; pronotum castaneous or reddish yellow, with broad hyaline lateral borders; tegmina flavo-hyaline; wings with marginal field and veins blackish brown; abdomen reddish brown or yellowish brown; legs and antennae light yellow; cerci fuscous. Tegmina: costal veins 13 or 18, in the former case 5 veins are bifurcate; ulnar vein with 6 branches. Wings: costal veins 9 or 10, their extremities more or less swollen, each veins connecting with each other by one or two oblique cross-veins; marginal field rather narrow; medio-discal field crossed by 6 transversal venules; ulnar vein bifurcate, the branches connected with each other by two transversal venules, the lower branch with 3 transversal branches behind; first axillary vein 4-ramose; apical area large, somewhat parabolic; its base slightly obtusely angulate, about two-fifths of total wing-length. Supra-anal lamina subtriangular, its tip slightly sinuate, not exceeding the subgenital lamina; subgenital lamina large, its apex rather straight on the median part, from where two not far apart somewhat oval genital appendages are exposed. Posterior metatarsus about $1\frac{1}{2}$ times as long as the remaining joints together.

Length:	♂	♀
Body	8 mm	7-9 mm
Tegmina	8	5-6
Wing	11	5-6

Hab.: Formosa—Arisan (X, V), Musha (V), Fuhosho (VII), Shinchiku (VII), Taito (II, III).

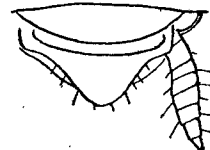
Type in the Entomological Institute of Kaiser Wilhelm Gesellschaft, Berlin-Dahlem.

63. *Anaplecta arisanica*, n. sp. Fig. 19.

Very closely allied to *ruficollis*, KARNY, but differs as follows:

♀. Pronotum light yellow, with broad hyaline lateral borders; tegmina transparent, very slightly yellowish, the posterior ulnar vein simple (in *ruficollis* bifurcate); marginal field of wings narrower, very slightly broader than medio-discal field; ulnar vein of wings bifurcate, but not traversed with transversal venules; supra-anal lamina much produced behind the

Fig. 19.



Anaplecta arisanica.
♀. × ca 8.

Dorsal view of anal end.

subgenital lamina.

Length:	♀
Body	7 mm
Tegmina	6
Wing	ca. 6

Hab.: Formosa—Arisan (V).

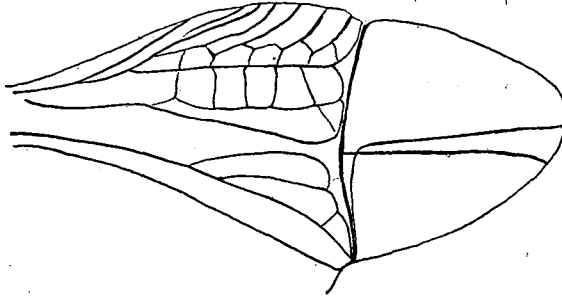
Type in the Entomological Museum of Government Research Institute, Taihoku, Formosa.

64. *Anaplecta simplex*, n. sp. Fig. 20.

Very small species, allied to *bornennsis*, SHELFORD.

Fusco-castaneous, lateral borders of pronotum and marginal field of tegmina light yellowish hyaline; ventral side of body and legs light yellow. Vertex broad, eyes being very small

Fi. 20.



Anaplecta simplex. × ca 8.
A part of right wing.

and round. Pronotum strongly convex on the anterior margin and moderately behind. Tegmina rather short, but distinctly exceeding the anal end; costal veins 8 or 9, more or less reticulate; axillary area traversed by three longitudinal veins and reticulate. Wings blackish brown, medio-discal and axillary fields more or less hyaline; costal veins 4,

their extremities very strongly swollen; radial vein bifurcate; medio-discal area crossed by 7 transversal venules, of which the apical two are slightly oblique; first axillary vein 3-ramose; apical area paraborical, divided subequally by one longitudinal vein, the tip slightly incised, its basal margin not angulate but slightly curved outwards, about $\frac{2}{3}$ of total wing-length. Supra-anal lamina of female obtusely angulate, exceeding the subgenital lamina, of male rounded at the apex very slightly incised. Subgenital lamina of male semi-circular, exceeding the supra-anal lamina, with two light yellow styles which are rather weak and are furnished with a distinct bristle at the tip; of female strongly compressed laterally. Posterior metatarsus about half as long as the remaining joints together.

Length:	♂	♀
Body	4.5 mm	4.5 mm

	♂	♀
Tegmina	4.5	4
Wing	6	6

Hab.: Formosa—Taihoku (VI).

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

XXIV Genus *Theganopteryx* BRUNNER VON WATTENWYL

Syst. Blatt., p. 53 (1865).

Key to the Japanese species

1. Wings of the both sexes well-developed.
 2. Tegmina uniformly coloured, not reticulate.
 3. Pronotum with two black longitudinal spots; ulnar vein of wings bifurcate; ulnar vein of tegmina not separated into anterior and posterior two; supra-anal lamina of male reaching to the apex of subgenital lamina. *lineata* SHIRAKI
 - 3^s. Pronotum black, with narrow yellowish margins; ulnar vein of wings simple or bifurcate; ulnar vein of tegmina separated into two, the anterior vein bifurcate and the posterior one multi-ramose; supra-anal lamina of male exceeding the apex of subgenital lamina. *nigripronota*, SHIRAKI
 - 2^s. Tegmina reddish brown or brown, distinctly reticulate by paler colour; pronotum reddish yellow (♀) or reddish brown (♂), with hyaline lateral borders, with two indistinct dark longitudinal stripes; ulnar vein of wing bifurcate, the branches far apart from each other in the middle; ulnar vein of tegmina multi-ramose. *formosana*, MATSUMURA
- 1^s. Wings of the both sexes rudiment. *perspicillaris*, KARNY

65. *Theganopteryx lineata*, SHIRAKI

Trans. Sapporo Nat. Hist. Soc. Jap., I., pt. 2, p. 2 (*Phyllodromia*) (1906).

Theganopteryx formosana, KARNY, Suppl. Ent., IV., p. 103 (1915).

Hab.: Formosa—Taihanroku (IX), Koshun (VII), Hosan (XI), Taihorin (VIII).

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

66. *Theganopteryx nigripronota*, SHIRAKI

Trans. Sapporo Nat. Hist. Soc. Jap., I., pt. 2, p. 2 (*Phyllodromia*) (1906).

Subgenital lamina of male as in *lineata*, m., but the styles comparatively small, especially the right one minute.

Hab.: Formosa—Horisha (VII, X).

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

67. *Theganopteryx formosana*, MATSUMURA

Chorisonaura formosana, MATS., Thous. Ins. Japan, Add., I., p. 14, pl. II, fig. 13 (1913).

Chorisonaura flavoantennata, SHIRAKI (nec BRUN. v. W.), Trans. Sapporo Nat. Hist. Soc. Jap., I., pt. 2, p. 5 (1906).

♂. Rather narrow, dark reddish brown. Vertex not covered by pronotum, broader than $\frac{1}{3}$ of head, castaneous; face reddish yellow or orange-yellow. Pronotum twice as broad as long, dark castaneous, with broad hyaline lateral borders and with pale median spot. Abdomen blackish brown, but narrow margins of dorsal and ventral segments yellowish and their median fields paler; supra-anal lamina transverse, the middle of posterior margin distinctly incised; subgenital lamina subtriangular, the apical margin three times sinuate, with a minute cylindrical pale yellowish style in the lateral situations. Tegmina reddish brown, distinctly reticulated by a light yellowish colour, and with narrow pale yellowish scapular area, as well as with an indistinct blackish humeral streak; axillary area traversed with four distinct longitudinal veins; costal veins 15; ulnar vein multi-ramose. Wings hyaline with blackish veins; apical area triangular; costal veins 18, swollen throughout their whole length; radial vein bifurcate; medio-discal area very narrow, with more than 8 transversal venules; ulnar vein bifurcate, but at the tip again united together, with two or three transversal and one oblique venules; first axillary vein with three branches. Legs light yellow, femora without spines beneath; claws with a rather large arolium.

♀. Broad, distinctly paler than male, reddish yellow. Tegmina without blackish humeral streak; wings with yellowish veins; supra-anal lamina somewhat produced behind; subgenital lamina very broad, the apical margin very slightly convex and very slightly sinuate at the apex; hind femora with only one or two spines near the tip of under side.

Length:	♂	♀
Body	9 mm	9 mm
Tegmina	7.5	8
Wing	7.3	7

Hab.: Formosa—Koshun (IV, V, IX), Taito (II, III).

Type in the Entomological Museum of the Hokkaido Imperial University, Sapporo, Japan.

68. *Theganopteryx perspicillaris*, KARNY.

Suppl. Ent., IV., p. 103 (1915).

Hab.: Formosa—Hosan (I), Horisha (V, VIII), Toen (XI).

Type in the Entomological Institute of Kaiser Wilhelm Gesellschaft, Berlin-Dahlem.