

THE GENUS *PLOTINA* AND RELATED GENERA (Coleoptera : Coccinellidae)^{1,2}

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Abstract : This paper is part of a revisional study of the tribe Pharini of East Asia and treats the genus *Plotina* Lewis and 5 genera related to it. Two genera, *Palaeoeneis* Crotch and *Buprestodera* Sicard, should be transferred to Pharini from the tribes Oeneini and Coccinellini respectively by having apparent relationship to *Plotina*. Three new genera are proposed, each for a single species. These genera have close affinities in the genital structure of both sexes as well as in many external characters, and seem to form a compact group in the tribe.

The genus *Plotina* was proposed by Lewis (1896) for the reception of one species, *P. versicolor* Lewis, from Japan, which is tiny but somewhat anomalous and has a striking combination of 3 colors on its dorsal surface. Lewis compared his genus with *Scymnus*, and later Jakobson (1915) ranked it in the tribe Synonychina. In 1931 Mader examined a cotype of *P. versicolor* and correctly referred the species to the tribe Coelopterini (= Pharini), and also Korschefsky in his catalogue listed it in the same tribe. In 1955 Mader described the 2nd species of the genus, *P. muelleri*, from Fukien, South China.

In the course of my study on the tribe Pharini of East Asia in the collection of the California Academy of Sciences (indicated in text as CAS), besides the two known species of *Plotina*, I found a new species collected from Hainan I., S. China which is related to it. While working on the present study, Pope (1962) published an excellent review of the Pharini of the world. And I have had opportunities to examine further material of East-Asian Pharini in the collections of the B. P. Bishop Museum (indicated as BISHOP) and the U. S. National Museum (indicated as USNM) since 1964. Consequently, I found several species, which may immediately run into *Plotina* in Pope's key to the genera of Pharini on account of their complete femoral lines of the first abdominal sternite and the glabrous dorsal surface of body. My comparative study of these species shows that they form a remarkable group within the tribe, while having several important significant differences such as the prosternum and its lateral striae or ridges, the apical segment of maxillary palpus, the propleural fovea, the eye facets, etc. Thus, I have assigned them to 6 genera, three of which are newly established here and are represented by a single

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species each.

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KEY TO GENERA OF PHARINI (with complete femoral lines
of the 1st abdominal sternite)

- 1 (2). Dorsal surface finely pubescent. (Africa) **Hemipharus***
 2 (1). Dorsal surface almost glabrous. (East Asia).
 3 (6). Anterior border of prosternum not so strongly produced downward at middle, but forming a partial cover for mouth parts and antennae; prosternal process with lateral striae extending beyond anterior margin of front coxal cavities and strongly divergent anteriorly; propleura without distinct fovea; apical segment of maxillary palpus weakly dilated apically.
 4 (5). Body broadly oval; external borders of elytra not explanate-reflexed; eyes somewhat coarsely faceted..... **Plotina**
 5 (4). Body nearly hemispherical; external borders of elytra rather broadly explanate-reflexed; eyes more finely faceted **Sphaeroplolina**
 6 (3). Anterior border of prosternum strongly produced downward at middle to form an almost entire cover for mouth parts and antennae when head is retracted; apical segment of maxillary palpus strongly dilated apically (except *Paraplotina*).
 7 (10). Pronotum with an oblique line across posterior corner and basal line more or less distinct though abbreviated laterally.
 8 (9). Prosternal process with lateral striae extending beyond anterior margin of front coxal cavities and diverging anteriorly **Haemoplotina**
 9 (8). Prosternal process without lateral striae prolonged and divergent anteriorly... **Palaeoeneis**
 10 (7). Pronotum without an oblique line across posterior corner and distinct basal line or sometimes with feeble and short basal line in front of scutellum.
 11 (12). Apical segment of maxillary palpus not so strongly dilated apically; eyes rather coarsely faceted; elytral punctures almost simple; propleural fovea indistinct **Paraplotina**
 12 (11). Apical segment of maxillary palpus strongly dilated apically; eyes more finely faceted; elytral punctures distinctly double; propleural fovea distinct **Buprestodera**

Genus **Plotina** Lewis

Plotina Lewis, 1896, *Ann. Mag. Nat. Hist.* ser. 6, **17**: 35.—Jakobson, 1915, *Käfer Russlands* **11**: 987.—Mader, 1927, *Evidenz pal. Cocc.* **1**: 22; 1931, *Ent. Anz.* **11**: 200; 1934, *Evidenz pal. Cocc.* **1**: 294; 1955, *Ibid.*, **2**: 817, 822-23.—Korschefsky, 1931, *Cocc. I, Col. Cat.* **118**: 213.—Pope, 1962, *Ann. Mag. Nat. Hist.* ser. 13, **4**: 629, 632.

Type species: *P. versicolor* Lewis, 1896, by original designation.

Geographical range: Japan and S. China.

Body small, 2.5-3.5 mm long, broadly oval, moderately convex, about 1/2 as high as long or

* Not studied in this work.

nearly so; dorsal surface almost glabrous, except for head, which is finely but distinctly pubescent, lateral margins of pronotum and elytra which are furnished with very fine and sparse hairs in a row, and disks of pronotum and elytra which are scattered with a few very fine hairs which are hardly discernible under high magnification; venter and appendages finely and rather sparsely pubescent.

Head comparatively small, concealed by pronotum beyond posterior margins of eyes; frons slightly or not convex, feebly bi-impressed between antennal insertions and with a carina along inner orbit of eye; anterior margin of frons straight, rather shallowly emarginate around antennal insertion (fig. 1A & B); labrum transverse, broadly rounded at apex and sides (fig. 1C); labium with labial palpi moderately slender, its apical segment being acuminate-cylindrical, and mentum subtrapezoidal (fig. 1E); mandibles robust, with a subapical tooth just behind apical tooth (fig. 1D); maxillae densely setose at apices of lacinia and galea, maxillary palpi comparatively large, subequal in length to antenna (fig. 1F); eyes small, coarsely faceted, distinctly notched by narrow lateral extension of frons or canthus. Antennae as in fig. 1G, robust, 10-segmented, with an elongate oval club made up of last 4 segments, 1st segment somewhat bulbiform, 2nd shorter and narrower than 1st, 3rd somewhat triangular, distinctly longer than wide, 4-6 as wide or wider than long, 6th forming a short support for club, 7-10 gradually dilated, forming a broad oval club, 10th largest, rounded at apex. Pronotum nearly pentagonal, about 2× as wide as long; anterior margin broadly emarginate and finely beaded; sides almost straight or slightly rounded, moderately narrowing from base to apex, finely margined; anterior corners more or less projected forwards; posterior corners distinctly but obtusely angulated and each with a short oblique line; base broadly rounded, with basal marginal line fine but distinct, though abbreviated at sides. Scutellum small and nearly triangular. Elytra confusedly punctured, humeral calli rather prominent, external borders not explanate-reflexed, and finely beaded; epipleura moderately narrow, abruptly narrowing to apex behind metasternum, horizontal, without excavation for tip of femora. Venter as in fig. 1H: Prosternum moderately developed; anterior border not strongly produced downward at middle but forming a partial cover for mouthparts and antennae when head is retracted; prosternal process rather wide, subtruncate at apex, with lateral striae prolonged anteriorly strongly diverging in front of coxal cavities; propleura without fovea; intercoxal portion of mesosternum relatively broad, about 2× as wide as long, anterior margin subtruncate; metasternum wide with median longitudinal line not distinctly impressed. Abdomen with 5 visible sternites; 1st sternite longest, approximately as long as 2nd to 4th sternites combined, with femoral line complete, strongly and unevenly curved, reaching near posterior margin, outer part of line being subparallel to side; 5th longer than preceding, broadly rounded behind in ♂, but somewhat narrowly rounded in ♀; 8th sternite truncate behind in ♂ (fig. 5A) but rounded in ♀. Legs with femora moderately stout, fore tibia somewhat broad and constricted at base, mid and hind tibiae rather slender, shallowly excavate for reception of tarsus, tarsi 4-segmented, tarsal claws simple and slightly thickened basally, forming a feeble tooth; tibial spurs present on mid and hind tibiae 1 and 2 respectively.

♂ genitalia: tegmen nearly symmetrical, with trabes slender; siphon moderately long and slender, apical portion not complicated. ♀ genitalia: genital plates elongate triangular; spermatheca composed of stout basal body and strongly curved tubular apical portion; sperm duct relatively long; infundibulum absent.

This genus contains 2 species known from Japan and S. China. These may be separated from each other by the following characters.

Pronotum with a subbasal blackish marking, which is often narrowly divided into 2 patches medially; elytra with 10 blackish spots (1, 1/2, 2, 1 + 1/2 on each elytron), 2 of which are placed on suture. Length 2.3-3.0 mm **versicolor**
 Pronotum without blackish marking; elytra with 8 blackish spots (1, 1, 2 on each elytron), which are never placed on suture. Length 3.2-3.5 mm **muelleri**

Plotina versicolor Lewis Fig. 1A-H, 2A, 6A-C, 8A-B.

Plotina versicolor Lewis, 1896, *Ann. Mag. Nat. Hist.* ser. 6, **17**: 35 (Japan: Oyama in Sagami).—Mader, 1927, *Evidenz pal. Cocc.* **1**: 22; 1931, *Ent. Anz.* **11**: 200-1; 1934, *Evidenz pal. Cocc.* **1**: 294; 1955, *Kol. Rundsch.* **33**: 78 (China: Fukien); 1955, *Ent. Arb. Mus. Frey* **6** (3): 822, pl. 28, fig. 11.—Winkler, 1927, *Cat. Col. pal.* **7**: 788.—Korschefsky, 1931, *Cocc. I, Col. Cat.* **118**: 213.—Ishihara et al., 1953, *Trans. Shikoku Ent. Soc.* 3, Suppl.: 83 (Japan: Mt. Ishizuchi).—Pope, 1962, *Ann. Mag. Nat. Hist.* ser. 13, **4**: 632.—Nakane, 1963, *Icon. Ins. Jap. Colore nat. edit.* **2**: 209, pl. 105, fig. 4 (Japan: Honshu, Shikoku).

Body broadly oval, moderately convex, reddish brown, strongly shiny. Head usually darkened on vertex and near eyes, mouth parts and antennae deep yellowish brown, mandibles piceous at tips. Pronotum with sides somewhat yellowish and a transverse blackish patch before scutellum, which is obscurely divided into 2 patches by a reddish median line. Scutellum piceous or dark reddish brown. Elytra deep yellow, with a broad median band and a narrow sutural vitta reddish testaceous or reddish orange, apical area sometimes obscurely brownish, and with 10 blackish spots: spot 1 being placed at humeral callus, rounded, attaching to basal margin, which is very narrowly brownish; spot 2 common to both elytra on suture from basal 1/5 to about middle, elongate oval; spot 3 at center of elytron, oblong and largest; spot 4 a little before middle along external border, oblong and about 1/2 as large as spot 3; spot 5 common to both elytra on suture at apical 1/4, somewhat cordiform, spot 6 lying in a line with spot 5, near lateral margin and roundish. Venter reddish brown, with propleura, elytral epipleura and legs yellowish brown, metasternum and middle area of abdomen more or less darkened.

Head rather coarsely but clearly and closely punctured, punctures being somewhat sparser in middle, interstices almost smooth and covered with fine yellowish pubescence. Pronotum with anterior corners narrowly rounded, projecting forwards; surface uniformly finely and not very closely punctured, punctures being finer than those on head, interstices more or less feebly alutaceous. Scutellum with a few minute punctures. Elytra rather closely covered with double punctures: small punctures being subequal to or slightly larger than those on pronotum, larger punctures much coarser than those on pronotum, punctuation becoming finer towards sides and apex, interstices almost smooth. Prosternum not visibly punctured and very sparsely hairy; mesosternum finely and sparsely punctured; metasternum finely and sparsely punctured and haired, punctures becoming gradually coarser and closer towards sides, side pieces rather coarsely and closely punctured. Abdominal sternites finely alutaceous except middle of 1st sternite, which is sparsely and coarsely punctured, the rest of 1st and other sternites rather closely and coarsely punctured, punctures being obscured by reticulation on interstices between them; femoral line of 1st reaching to approximately apical 1/10 length of sternite, area surrounded by line strongly and closely punctured; posterior margin of 8th broadly rounded and subtruncate medially in ♂.

♂ genitalia as in fig. 6 A-C; median lobe of tegmen comparatively small, elongate oval or spindle-shaped; lateral lobes distinctly longer than median lobe, slender and slightly clavate, and densely hairy on apical and inner areas; basal piece comparatively large; trabes slender, much longer than tegmen proper; siphon moderately slender, of almost same width throughout its length up to apical 1/6, then abruptly narrowed to pointed apex.

♀ genitalia as in fig. 8 A-B; genital plate elongate triangular, strongly narrowing apically, stylus minute; spermatheca very small, basal body more or less bulbous, shorter than apical tubular portion, which is strongly curved near base and slightly so near apex which is quite rounded; sperm duct moderately long.

Length 2.5-3.0 mm; width 1.8-2.2 mm.

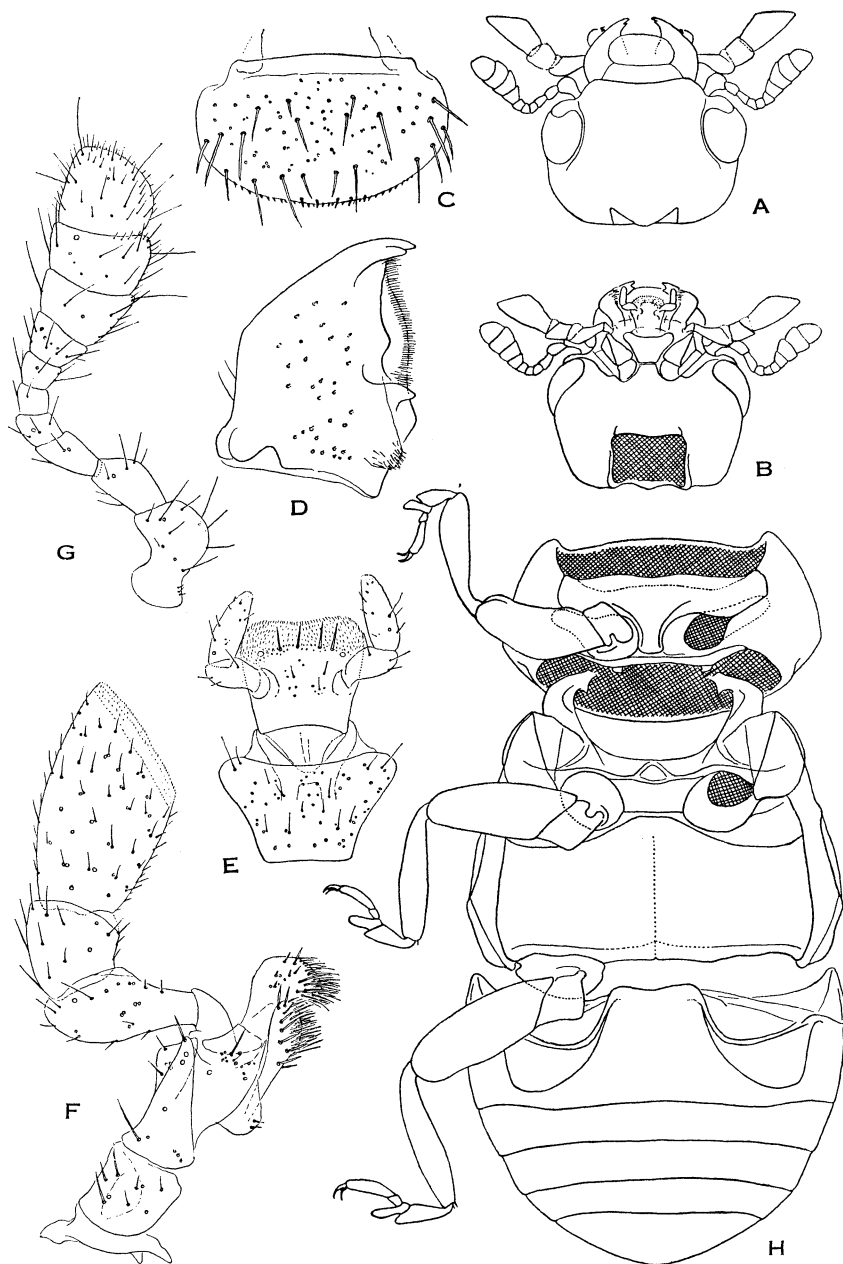


Fig. 1. *Plotina versicolor*: A, head, dorsal view; B, ditto, ventral view; C, labrum; D, left mandible, ventral view; E, labium and mentum; F, maxilla; G, antenna; H, venter.

SPECIMENS EXAMINED: JAPAN: *Honshu*: ♀, Hakone, IV.1895, A. Koebele (CAS). *Shikoku*: 1♀, Omogoeki, Ehime Pref., 700 m, 25.VIII.1957, M. Miyatake; 1♂, Kurokawa in

Mt. Ishizuchiyama, 700 m, 23.V.1948, S. Yano; 2 ex., Sugitate, Matsuyama, Ehime Pref., 650 m, 6.X.1964, S. Hisamatsu (Ehime Univ.)

DISTRIBUTION: Japan (Honshu, Shikoku); S China (Fukien).

Plotina muelleri Mader Fig. 2B, 8C.

Plotina Müller Mader, 1955, *Kol. Rundsch.* 33: 73-74 (S. China: Fukien-Kuatun); 1955, *Ent. Arb. Mus. Frey* 6 (3): 1026-7.

Body broadly oval, rather strongly convex; reddish brown, strongly shiny. Head with mouth parts and antennae yellowish brown. Pronotum reddish testaceous, lateral portions widely yellowish brown, anterior corners yellowish. Scutellum pitchy brown. Elytra deep yellow, with a broad median band and a narrow sutural vitta reddish brown, median band sinuous and widened towards suture and sides, and each with 4 blackish round spots: spot 1 placed on humeral callus, free to basal margin, spot 2 on middle of posterior margin of median band, smaller than spot 1, spots 3 and 4 arranged transversely at 3/4 of elytral length in yellow part, spot 3 near to lateral margin, smaller than spot 1, spot 4 nearer to suture than spot 3, smaller than it. Venter including legs yellowish brown, propleura, elytral epipleura, etc. more or less yellowish, middle area of metasternum, intercoxal area of 1st abdominal sternite somewhat darker.

Head more sparsely but somewhat coarsely punctured than in *versicolor*, interstices finely and obscurely alutaceous. Pronotum more sparsely, clearly and uniformly punctured than on head, interstices almost smooth except lateral portions which are feebly alutaceous; anterior 1/2 of lateral margin rather strongly rounded, somewhat broadly explanate-reflexed; anterior corners broadly rounded. Scutellum with a few minute punctures. Elytra rather closely covered with double punctures: small punctures subequal to or slightly finer than those on pronotum, and large punctures much coarser than those on pronotum, punctures being obscured towards sides and apices, interstices exactly smooth. Punctures on metasternum coarser than in *versicolor*. Femoral line of 1st abdominal sternite like *versicolor*. Punctuation on abdominal sternites generally finer and sparser than in *versicolor*.

♀ genitalia: spermatheca as in fig. 8C, comparatively large, basal body bulbous, about as long as apical tubular body, which is strongly curved and narrowly rounded at apex; sperm duct very long; genital plate formed as in *versicolor* but proportionally large.

Length 3.5 mm; width 2.7 mm.

SPECIMEN EXAMINED: S. CHINA: 1♀, Tachulan, Shao-wu, Fukien, 10.V.1943, T. C. Maa (CAS).

DISTRIBUTION: S. China (Fukien).

Genus **Sphaerplotina** Miyatake, new genus

Body nearly hemispherical, moderately convex; almost glabrous above, except for head, which is finely and sparsely pubescent. Head very broad; frons wide but narrower than in *Plotina*; eyes relatively large and rather finely faceted; antennae formed as in *Plotina*, but more robust; maxillary palpi with apical segment a little more strongly dilated apically than in *Plotina*. Pronotum strongly transverse, more than 2× as wide as long; basal line and short oblique line across posterior corner distinct. Scutellum small and roughly triangular. Elytra rounded, with external borders which are rather widely explanate-reflexed and epipleura which are rather wide and slightly descending externally. Prosternum transverse, with anterior border not strongly produced downward, intercoxal process wide, with lateral striae prolonged and strongly divergent in front of coxal cavities (fig. 4C); propleura short, without distinct fovea. Mesosternum with

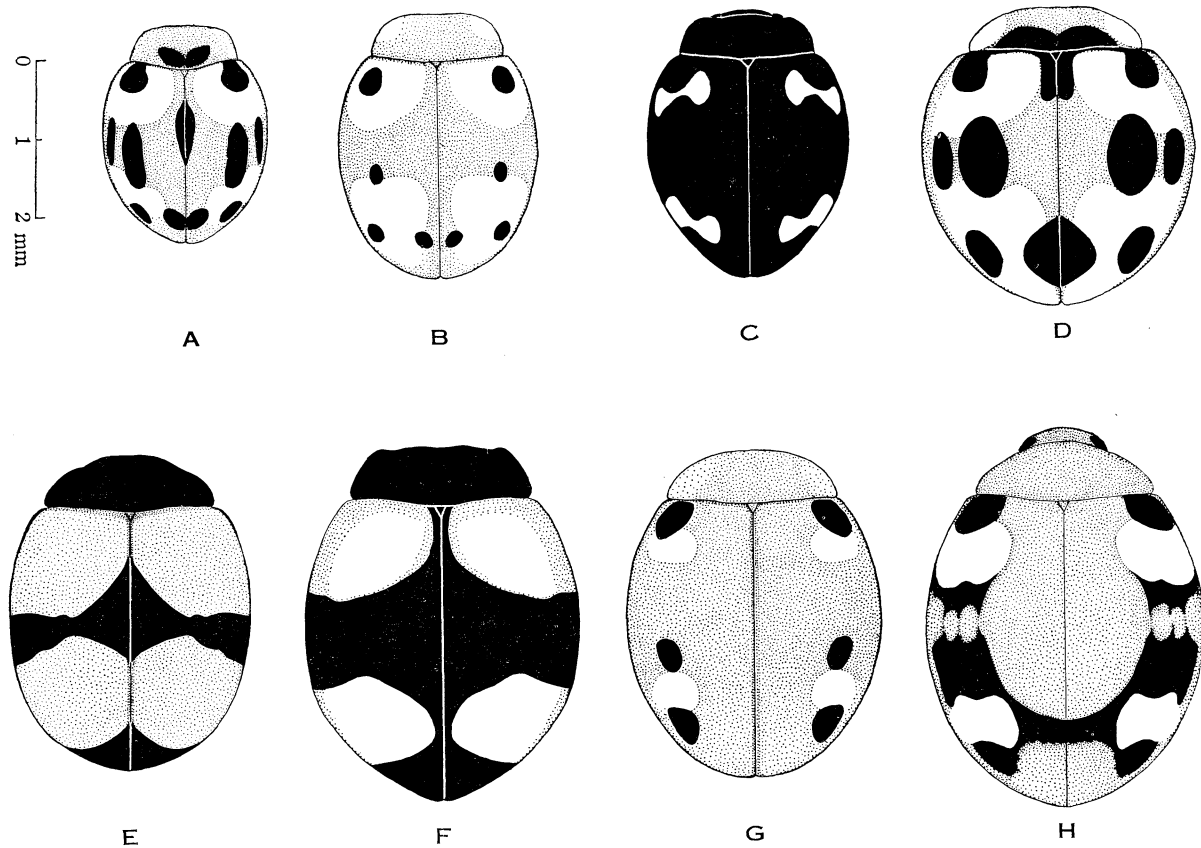


Fig. 2. Dorsal outline and pattern: A, *Plotina versicolor*; B, *P. muelleri*; C, *Paraplotina flavomaculata*; D, *Sphaerplotina hainanensis*; E, *Haemoplotina coccinea*; F, *Palaeoeneis aurantiaca*; G-H, *Buprestodera mimetica* (G, typical form; H, an aberrant form).

median part wide, about $2.5\times$ as wide as long. Metasternum convex, with longitudinal median line very feebly impressed, each side of which coarse punctures are scattered. Abdomen formed as in *Plotina*; femoral line of 1st sternite complete, strongly curved, reaching to approximately its posterior margin; 5th sternite of ♂ broadly rounded and subtruncate medially or nearly so, but that of ♀ rounded behind; 8th sternite of ♂ broadly emarginate behind (fig. 5B). Tibial spurs present on mid and hind legs 1 and 2 respectively. ♂ genitalia similar in general form to *Plotina*, but siphon very long and slender. ♀ genitalia also similar to *Plotina*, except for basal body of spermatheca being more rounded and sperm duct very long.

Type species: *Sphaerplotina hainanensis* n. sp.

Geographical range: S. China (Hainan I.).

Differing from *Plotina* in the body being more rounded and nearly hemispherical, the external borders of elytra remarkably explanate-reflexed, the elytral epipleura wide and more or less descending externally, the eyes larger and more finely faceted, and the frons distinctly narrower between eyes.

***Sphaerplotina hainanensis* Miyatake, new species** Fig. 2D, 4C, 5B, 6 D-F, 8D.

♂. Nearly hemispherical; dorsal surface of an odd combination of 3 colors: reddish brown, deep yellow, and black; strongly shiny; almost glabrous above. Head reddish brown; labrum, palpi, and antennae more or less yellowish brown; canthi of eyes darkened. Pronotum reddish brown, sides broadly yellowish, basal 1/2 with a transverse pitchy-black band within external margins of eyes. Scutellum pitchy brown. Elytra deep yellow, with a broad median band and narrow sutural, basal, and lateral margins which are all reddish testaceous, and each with 6 black spots: spot 1 placed on suture, including scutellum, oblong, spot 2 on humeral callus, roundish and touching base, spot 3 a little before center, largest and elliptical, spot 4 between lateral margin and spot 3, about 1/2 the latter in size, spot 5 on suture from beginning of 2/3 to 1/7, rhomboidal conjointly, spot 6 nearer to side than to spot 5, roundish, about as large as spot 2. Venter including legs reddish brown; middle areas of pro- and metasternum more or less reddish, median line and basal margin of metasternum piceous; external border of epipleura narrowly piceous; tarsal segments somewhat darker.

Head closely covered with rather coarse but even punctures, interstices indistinctly alutaceous, sparsely clothed with short pubescence. Pronotum about $2\times$ as wide as long, closely punctured as on head, though punctures somewhat smaller, interstices almost smooth except on narrow lateral portions, which are distinctly but finely alutaceous; anterior border broadly and arcuately emarginate; anterior corners acutely produced as seen from above, but extreme apex rounded; sides slightly arcuate, finely beaded and grooved; posterior corners obtusely angulate; base roundly produced posteriorly, basal line obscured at sides. Elytra round, about as long as wide conjointly, with sides relatively broadly explanate-reflexed, with coarse marginal bead, reflexed border becoming narrower posteriorly; dorsum rather sparsely covered with double punctures: fine punctures being much smaller than those on pronotum, coarse punctures being distinctly larger than those on pronotum, though becoming somewhat smaller towards base and apex. Prosternum about $2.7\times$ as wide as long, about $2.5\times$ as long as width of intercoxal process, which is rather wide, coarsely punctured on median part and obscurely punctured and finely alutaceous on lateral areas together with propleura; mesosternum sparsely and indistinctly punctured; metasternum scattered with coarse punctures in middle and with much finer and sparser punctures on lateral areas, side pieces of metasternum finely alutaceous and obscurely but closely punctured. Elytral epipleura very broad in basal 1/2, slightly depressed for tips of middle and hind femora, more or less descending externally. Abdominal sternites finely alutaceous and rather closely covered with somewhat obscure punctures except for middle area of 1st ster-

nite, where the punctures are very sparse and fine but clear; femoral line of 1st sternite reaching to apical 1/12 length of sternite, area surrounded by line finely alutaceous and obscurely punctured; posterior margin of 5th sternite broadly rounded and subtruncate medially; 8th sternite broadly emarginate behind (fig. 5B). Genitalia as in fig. 6 D-F: median lobe of tegmen somewhat spindle-shaped, lateral lobes slightly longer than median lobe, slender and somewhat clavate, and densely hairy on apical and inner areas, and with a tuft of very long hairs at base; basal piece long and wide with a slender and curved basal projection; trabes slender and much longer than tegmen proper; holotype with siphon missing siphonal capsule, remaining part very slender, with 2 obscure constrictions at apical portion, extreme apex acicular. Length 3.75 mm; width 3.30 mm.

♀. Fifth sternite of abdomen rather narrowly rounded behind. Genital plate elongate triangular as in *Plotina*; spermatheca with basal body more rounded, apical tubular part slightly curved, its apex bluntly pointed, sperm duct very long (fig. 8D). Length 3.8 mm; width 3.4 mm.

Holotype ♂, En route Chung-kon-t'suen to Tai-pin-ts'uen, Kiung Shan District, Hainan I., S. China, 19.VII.1935, F. K. To (BISHOP deposit ex coll. Lingnan Univ.) Paratopotype ♀, same data as holotype (BISHOP).

This new species is very distinctive in the shape of its roundish body, the distinctly explanate-reflexed external borders of elytra, the peculiar feature of elytral maculation, etc. from other species treated in this paper.

Genus *Haemoplotina* Miyatake, new genus

Palaeoneis Crotch, 1874, *Revis. Cocc.* p. 205 (partim). — Korschefsky, 1933, *Stylops* 2 (10): 237 (*Palaeoneis*!, partim).

Body shortly oval, strongly convex, almost glabrous on dorsal surface except head. Head comparatively large, frons wide; eyes finely faceted; mouthparts like *Plotina* except for apical segment of maxillary palpi, which is strongly dilated apically and obliquely truncate; antennae like *Plotina*. Pronotum convex, with distinct basal line and short oblique line near posterior corner. Elytra rounded, with external borders which are not explanate or reflexed at all; epipleura moderately narrow, almost horizontal, not excavate for tips of femora. Prosternum anteriorly but not strongly downward produced medially, prosternal process moderately wide, with lateral striae extending forwards beyond anterior margin of front coxal cavities, strongly diverging anteriorly; propleura rather wide, with a more or less distinct fovea; mesosternum comparatively narrow between coxae, about 2× as wide as long; metasternum slightly convex, with very feebly impressed median suture. Abdomen of 5 visible sternites; 1st with femoral line complete, strongly and unevenly curved as in *Plotina*, reaching near posterior margin; 5th broadly rounded behind in both sexes; 8th broadly rounded behind in ♂ (fig. 5C). Tibial spurs on mid and hind legs 1 and 2 respectively. ♂ genitalia practically as in *Plotina*. ♀ genitalia: genital plate tubular, stylus very small; spermatheca not differentiated into 2 parts as in *Plotina* and other allies but somewhat sausage-like, strongly curved near middle and not narrowed apically.

Type species: *Palaeoneis coccinea* Crotch, 1874.

Geographical range: Malay Archipelago (N. Borneo and Java).

This new genus seems to be more closely related to the following genus, *Palaeoneis*, than to *Plotina* in the prosternum being strongly produced anteriorly, the securiform apical segment of maxillary palpus, the presence of propleural fovea, the finely faceted eyes, but it differs from *Palaeoneis* in the presence of lateral striae on prosternum, the small and less deep fovea on propleura, and in the sausage-like spermatheca.

Haemoplolina coccinea (Crotch) Fig. 2E, 3B, 4D, 5C, 7A-C, 8E.

Palaeoeneis coccinea Crotch, 1874, *Revis. Cocc.* p. 205 (Sarawak).—Korschefsky, 1931, *Cocc. I, Col. Cat.* 118: 218; 1933, *Stylops* 2 (10): 237, fig. 6 (*Palaeoeneis* !, notes and figure of type specimen).

Palaeoeneis ! *coccinea javana* Korschefsky, 1933, *loc. cit.* 237, fig. 7 (Java: Semarang, Tjilatjap).

New synonymy.

Pullolotis nigricollis Weise in litt., Korschefsky, 1933, *loc. cit.* 237.

Body rounded oval, strongly convex; reddish brown, head pitchy brown with antennae and mouth parts mostly yellowish testaceous excepting maxillary palpi and mandibles more or less piceous; pronotum pitchy black with anterior corners more or less yellowish brown and sometimes anterior margin narrowly reddish brown; scutellum reddish brown to piceous; elytra orange-red or carmine-red, with a blackish median transverse band and an apical triangular spot, which are piceous black to black: median band being variable in size and shape, sometime interrupted at middle on each elytron, forming 3 isolated spots, which are transversely arranged in middle of both elytra. Venter reddish brown, middle part of metasternum and 1st visible sternite of abdomen more or less darkened, propleura, elytral epipleura and marginal area of abdomen somewhat yellowish brown. Legs dark reddish brown with tarsi yellowish brown.

Head broad, flattened, rather distinctly but finely and sparsely punctured, punctures becoming somewhat closer towards eyes, interstices smooth. Pronotum slightly more than 1/2 as long as wide (22: 12), sides almost straight, or slightly arcuate; surface finely and rather uniformly punctured, interstices almost smooth. Elytra strongly convex, external borders invisible from above except for basal and apical portions; surface sparsely covered with very fine and inconspicuous punctures and sparsely intermingled with coarse and uneven punctures in middle. Metasternum with coarse and sparse punctures at middle. Abdominal sternites finely and sparsely punctured for the most part, somewhat closer on 5th; femoral line of 1st reaching to nearly apical 1/10 length of sternite, area surrounded by line finely alutaceous and rather finely and closely punctured; 8th of ♂ broadly rounded behind (fig. 5C).

♂ genitalia as in fig. 7 A-C; median lobe of tegmen elongate triangular, with sides slightly arcuate near base, as seen from side gradually tapering to pointed apex, dorsal surface somewhat concave in basal 1/2, opening narrow; lateral lobes much longer than median lobe, slightly clavate apically, as seen from side evenly curved, rather sparsely with long hairs on ventral edge; siphon slender, moderately curved, forming a half circle; capsule with long narrow outer arm and short inner arm, somewhat thickened basally, and with a slight swelling near apex,

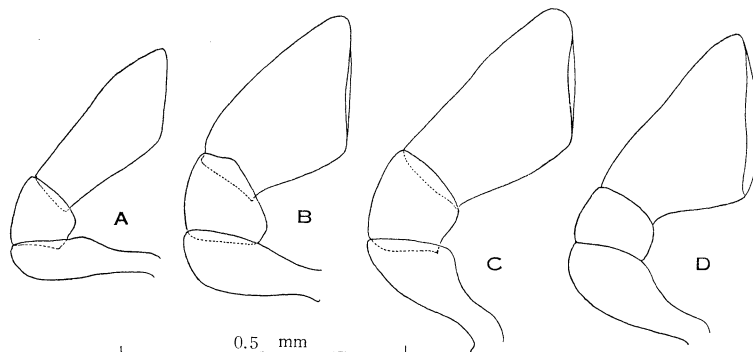


Fig. 3. Maxillary palpus: A, *Paraplotina flavomaculata*; B, *Haemoplolina coccinea*; C, *Palaeoeneis aurantiaca*; D, *Buprestodera mimetica*.

which is somewhat twisted. ♀ genitalia as described in generic diagnosis and spermatheca as shown in fig. 8E.

Length 3.0-4.0 mm; width 2.3-3.1 mm.

SPECIMENS EXAMINED: 5 syntypes of *javana* Korschefsky from JAVA (USNM): 3♂♂, 1♀, Semarang, II.1904, XII.1903, V.1906, and XI.1908, F. C. Drescher; 1♂, Tjilatjap, Java, II.1910, F. C. Drescher.

DISTRIBUTION: N. Borneo (Sarawak); Java.

The median blackish band of elytra seems to be very variable in the development. Korschefsky described a subspecies of this species from Java on account of reduction of the band. I have examined the type specimens of *javana* in the U. S. National Museum. The development of the blackish band is not constant even among the present specimens. Thus, I have found no distinctive character to separate the 2 forms.

Genus *Palaeoeneis* Crotch

Palaeoeneis Crotch, 1874, *Revis. Cocc.* p. 205 (near *Cryptognatha*). — Korschefsky, 1931, *Cocc. I, Col. Cat.* **118**: 218 (sub *Oeneini*); 1933, *Stylops* **2** (10): 237 (*Palaeoeneis*!, near to *Sticholotis* but not to *Cryptognatha*)

Type species: *Palaeoeneis aurantiaca* Crotch, 1874, by original designation.

Geographical range: Indo-china (Vietnam, Laos) and Malay Peninsula.

Body broadly oval, strongly convex; glabrous above except head. Head moderately small, withdrawn into prothorax; antennae robust, like *Plotina*; apical segment of maxillary palpi rather strongly dilated apically (fig. 3C); eyes rather finely faceted. Pronotum transverse, nearly 2× as wide as long, anterior border somewhat pentagonally emarginate, anterior corners narrow, side almost straight except near apex, where it is arcuate; basal line and a short oblique line near posterior corner distinct (fig. 4A). Elytra strongly convex, sides distinctly visible

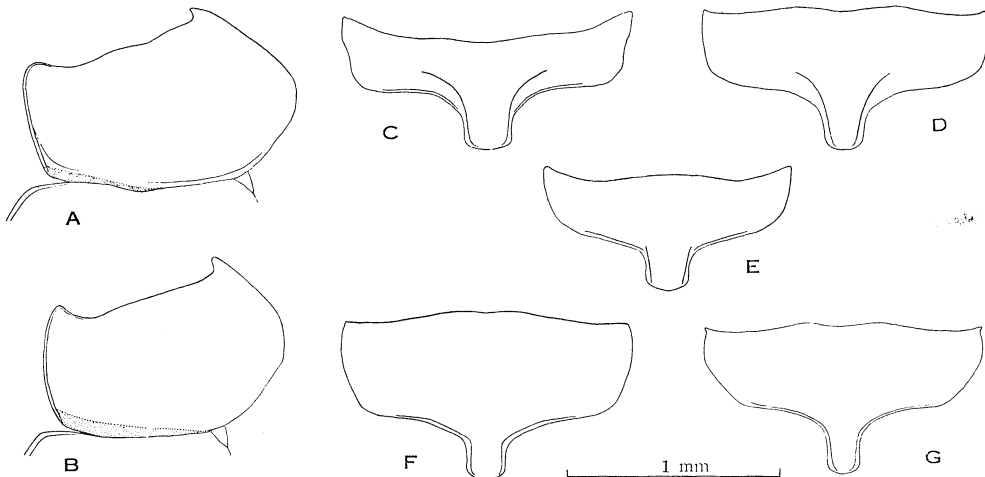


Fig. 4. Pronotum and prosternum. Pronotum in dorsolateral view: A, *Palaeoeneis aurantiaca*; B, *Buprestodera mimetica*. Prosternum: C, *Sphaerplotina hainanensis*; D, *Haemoplotina coccinea*; E, *Paraplotina flavomaculata*; F, *Palaeoeneis aurantiaca*; G, *Buprestodera mimetica*.

from above throughout their length, external borders not explanate, and covered with uneven punctures, which are apparently different in size; elytral epipleura moderately narrow. Prosternum well developed, wide and long before coxal cavities; anterior border strongly downward produced medially to form an almost entire cover for mouth parts and antennae when head is retracted; intercoxal process comparatively narrow and short, without lateral striae prolonged and divergent in front of coxal cavities (fig. 4F); propleura with large and rather deep fovea. Mesosternum transverse, about $2.5\times$ as wide as long. Metasternum with very feeble median line, and with coarse and sparse punctures at middle. Femoral lines of 1st abdominal sternite complete, strongly and rather evenly curved; 5th sternite moderately rounded behind in ♀. ♀ genitalia: spermatheca similar to that of *Sphaeroplastina*, with strongly globose basal body and slightly curved tubular portion, its apex rounded; sperm duct long; genital plate elongate triangular, stylus indistinct. ♂ not studied.

This genus is closely related to *Haemoplastina* as stated previously, differing from it in the prosternum which is more strongly produced anteriorly and destitute of lateral striae prolonged forwardly, the structure of spermatheca, etc.

Palaeoneis aurantiaca Crotch Fig. 2F, 3C, 4F, 8F.

Palaeoneis aurantiaca Crotch, 1874, *Revis. Cocc.* p. 205 (Malacca).—Korschevsky, 1931, *Cocc. I, Col. Cat.* **118**: 218; 1933, *Stylops* **2** (10): 237 (*Palaeoneis! australiaca!*).

Body very broadly oval, strongly convex. Head dark reddish brown, antennae, mouth parts including palpi reddish testaceous; pronotum piceous, anterior margin more or less narrowly reddish; scutellum piceous black; elytra orange-yellow, with a median broad blackish band, which is slightly widened at lateral margin and suture, an apical triangular spot and narrow sutural margin, which are all blackish. Venter dark reddish brown.

Head coarsely and closely punctured and clothed with yellowish fine pubescence, interstices between punctures finely and obscurely alutaceous; frons feebly depressed along eyes. Pronotum nearly $2\times$ as wide as long, anterior margin somewhat rectangularly emarginate; anterior corners acutely produced forwards; sides almost straight except near anterior corner, where it is somewhat strongly arcuate, gently narrowing from base to apex, somewhat coarsely margined; base broadly rounded, with fine marginal line, basal corners obtusely angulate and with a distinct short oblique line (fig. 4A); surface rather regularly covered with somewhat coarse punctures, which are slightly smaller and sparser than those on head, interstices almost smooth. Scutellum nearly an equilateral triangular with few close and minute punctures. Elytra rather sparsely covered with double punctures on whole part: coarse punctures visibly larger than those on pronotum and irregularly and sparsely set, while fine punctures much smaller but somewhat closer than coarser ones. Prosternum broad and long, about $3.5\times$ as long as width of process at middle, coarsely and obscurely punctured, and distinctly alutaceous at sides together with propleura; anterior margin strongly produced forwards and downward; propleural fovea large and oval. Mesosternum scattered with coarse punctures. Metasternum sparsely with very coarse punctures on each side of median line and very sparse and fine ones at sides. Abdominal sternites rather finely and closely punctured, and finely but distinctly alutaceous except for middle part of 1st sternite, where punctures are coarse and sparse; femoral line of 1st reaching to approximately apical $1/6$ length of sternite, area surrounded by line finely alutaceous and closely and coarsely punctured; 5th sternite broadly rounded behind in ♀. ♀ genitalia: genital plate very narrow, tapering apically, without distinct stylus; spermatheca as in fig. 8F.

Length 4.25–4.45 mm; width 3.30–3.50 mm.

SPECIMENS EXAMINED: INDO-CHINA: *Laos*: 1 ♀, Vientiane, 31.V.–3.VI.1960, S. Quate. *Vietnam*: 1 ♀, Ban Me Thuot, alt. 500 m, 16–18.V.1960, R. E. Leech,

DISTRIBUTION: Indo-China (Laos and Viet Nam); Malacca.

Genus **Parplotina** Miyatake, new genus

Body oval, moderately convex, almost glabrous above. Head somewhat small with small eyes, which are coarsely faceted as in *Plotina*, each facet convex; frons wide and flattened. Antennae relatively slender, 3rd to 6th segments each more elongate than those in *Plotina* and club narrower. Apical segment of maxillary palpus slightly dilated apically and strongly obliquely truncate (fig. 3A); that of labial palpus conical, thicker at base than in *Plotina*. Pronotum with fine basal line in front of scutellum, lateral grooves rather deep, extending behind posterior corner. Elytra convex, sides distinctly visible from above; entire surface uniformly punctured; epipleura moderately narrow and feebly depressed at base and middle for apices of mid and hind femora. Prosternum rather wide, with anterior border more or less strongly downwardly produced medially, intercoxal process relatively wide, about as wide as long, with lateral striae slightly protruding anterior margin of front coxal cavities but not prolonged and divergent in front of coxal cavities (fig. 4E); propleura without a distinct fovea but a shallow and narrow depression inside. Mesosternum strongly transverse between coxal cavities, about 2.5× as wide as long, anterior margin slightly emarginate medially. Metasternum convex, without coarse punctures in middle, median and basal lines obscure. Abdomen with femoral line of 1st sternite complete and strongly curved as in *Plotina*; 5th sternite broadly rounded behind in female. Legs moderate in form, except for somewhat slender tibiae. ♀ genitalia: genital plate very narrow, tapering apically, stylus rather long; spermatheca small, basal body feebly differentiated from tubular portion, which is strongly curved at middle and rounded at apex. ♂ not studied.

Type species: *Parplotina flavomaculata* new species.

Geographical range: S. India.

This new genus related to *Plotina* and *Buprestodera* which will be stated in the following, seems to be placed between them. It can be separated from *Plotina* by the prosternum with more strongly produced anterior margin and without lateral striae extending and diverging anteriorly, and from *Buprestodera* by the apical segment of maxillary palpus not strongly dilated apically and the more coarsely faceted eyes. The simple punctuation of elytra and relatively slender and long antennae seem to be peculiar characters to separate this genus from the other genera of this group.

Parplotina flavomaculata Miyatake, new species Fig. 2C, 3A, 4E, 8G.

Black, strongly shiny; mouth parts and antennae pitchy brown, except for labrum and basal segments of antennae somewhat yellowish; elytra each with 2 yellowish-orange spots, both of which are bipartite with narrow constriction at middle: anterior spot consisting of a spot behind humeral callus and a spot at halfway between callus and suture, posterior one consisting of a spot at 2/3 of margin and a spot connected immediately with it at interior-posterior side; venter and legs black to blackish piceous, tarsi paler than remainder.

Head rather closely and coarsely punctured, interstices finely alutaceous. Pronotum uniformly and moderately closely punctured, punctures being smaller but closer than those on head, interstices feebly alutaceous; anterior corners narrowly rounded; posterior corners obtusely angulate; sides slightly arcuate and rather striate; basal line very fine but visible at middle 1/3. Elytra more sparsely covered with more or less uniform and finer punctures than on pronotum, interstices almost smooth; sides moderately rounded, marginal striae deep and narrow; elytral epipleura rather broad at basal 1/2 and almost horizontal. Prosternum smooth and very sparse-

ly and minutely punctured; propleura alutaceous, obscurely punctured on anterior part, without distinct fovea. Metasternum very finely and sparsely punctured. Abdomen finely alutaceous on surface, sparsely and somewhat finely but obscurely punctured throughout; femoral line of 1st sternite reaching to apical 1/7 length of sternite, area surrounded by line strongly alutaceous and very obscurely and sparsely punctured; 5th sternite broadly rounded behind in ♀. ♀ genitalia as described in generic diagnosis and spermatheca as shown in fig. 8G.

Length 3.4 mm; width 2.5 mm.

Holotype ♀, Madras, S. India, no further data (CAS).

DISTRIBUTION: S. India.

Genus *Buprestodera* Sicard

Buprestodera Sicard, 1911, *Ann. Soc. Ent. Fr.* **79** (1910): 379-80 (near *Adalia*).—Korschefsky, 1932, *Cocc. II, Col. Cat.* **120**: 384 (sub Coccinellini).

Type species: *Buprestodera mimetica* Sicard, 1911, monobasic.

Geographical range: S India.

Body broadly oval, rather strongly convex; almost glabrous above, except head. Head relatively small; frons wide, not convex, and feebly depressed near eyes; eyes small, comparatively finely faceted, canthus rather narrow; antennae formed as in *Plotina*, but 3rd to 5th segments more slender, 6th more or less dilated, club somewhat broader; apical segment of maxillary palpus strongly dilated and obliquely truncate at apex (fig. 3D). Pronotum rather gently convex, anterior corners somewhat acutely produced forwards; basal line very feeble or hardly discernible in a certain direction and short oblique line near posterior corner absent (fig. 4B). Scutellum small and triangular. Elytra ovate, strongly rounded on sides, strongly convex above, external borders not explanate or reflexed, coarsely beaded, marginal bead becoming gradually finer towards apex; surface covered with double punctures; elytral epipleura moderately wide at basal 1/2, horizontal, not excavate for tips of femora. Prosternum well developed, wide and long in front of coxal cavities; anterior border strongly downward produced medially; intercoxal process relatively narrow and short, without lateral striae prolonged and divergent anteriorly (fig. 4G); propleura with a conspicuous fovea. Mesosternum wide, about 2× as wide as long, anterior border very slightly emarginate medially. Metasternum well developed, without coarse punctures, median line very feeble. Abdomen with femoral line of 1st sternite complete and strongly curved; 5th sternite slightly rounded behind in ♂ but somewhat narrowly rounded in ♀; 8th sternite broadly emarginate behind in ♂, while rounded in ♀. Legs moderately formed as in *Plotina*; tibial spurs present on middle and hind legs, 1 and 2 respectively. ♂ genitalia virtually as in *Plotina*, except median lobe of tegmen more or less obtusely angulate on sides and siphon with a small membranous swelling near apex. ♀ genitalia: genital plate narrow and long, tapering to apex, stylus somewhat button-shaped; spermatheca comparatively small, like that of *Plotina*, but sperm duct longer.

Sicard (1911) compared this genus with *Adalia* in the tribe Coccinellini because of the complete femoral lines of the 1st abdominal sternite, while he indicated that the type species of the genus is similar in coloration to a Japanese species, *Sticholotis hilleri* Weise, in the tribe Phariini. Korschefsky (1932) ranked it in the Coccinellini in his catalogue.

In this study, I found an apparently new species, which can be easily separated from the type species, *mimetica*, by the following synoptical table:

Body above tricolored: reddish orange with 3 black spots and 2 yellow spots or patches on each elytron; legs reddish brown **mimetica**

Body above almost concolorous except head, which is somewhat darker, without any marking; legs piceous to blackish piceous.....**inornata**

Buprestodera mimetica Sicard Fig. 2G-H, 3D, 4G, 5D, 7D-F, 8H.

Buprestodera mimetica Sicard, 1911, *Ann. Soc. Ent. Fr.* 79 (1910): 380-811 (India).—Korschefsky, 1932, *Cocc. II, Col. Cat.* 120: 384.

Bright reddish orange; pronotum with sides sometimes broadly yellowish; elytra each with 3 black spots and 2 yellow spots or patches: 1st black spot on humeral callus touching base or nearly so, 2nd a little behind middle and nearer to side than to suture, 3rd at about 4/5 of elytral length and much nearer to side, anterior yellow spot just behind 1st black spot, posterior one between 2nd and 3rd black spots, these black and yellow spots being fairly variable in size and shape (in Mysore specimen black spots being enlarged and connected with each other, as shown in fig. 2H). Venter including legs mostly yellowish brown, middle area of metasternum and 1st abdominal sternite somewhat darker or reddish brown.

Head comparatively closely and coarsely punctured around eyes, punctures becoming finer and sparser towards middle, which is feebly convex, and covered with fine yellowish pubescence. Pronotum a little longer than 1/2 width (29: 54); rather finely, evenly and sparsely punctured, interstices exactly smooth.

Elytra very sparsely covered with uneven fine punctures and scattered with very coarse and uneven punctures, interstices almost smooth. Prosternum obscurely punctured and sparsely and finely pubescent; mesosternum rather indistinctly and sparsely punctured; metasternum very finely and sparsely punctured, punctures somewhat closer and more distinct towards sides, which are finely alutaceous, side pieces and mesocoxal plates strongly alutaceous and obscurely and closely punctured.

Abdominal sternites rather obscurely and sparsely punctured except 5th sternite, where punctuation is very close and distinct; femoral line of 1st sternite reaching to nearly apical 1/8 length of sternite, area surrounded by line and area exterior to line somewhat coarsely and closely punctured, but punctures being somewhat obscured by reticulation on interstices between them; 8th sternite of ♂ broadly emarginate and each side of emargination somewhat distinctly angulate (fig. 5D).

♂ genitalia as in fig. 7D-F; median lobe of tegmen large, slightly dilated from base to middle, thence narrowed to apex, which is bluntly pointed; lateral lobes slightly longer than median lobe, moderately slender, slightly thickened apically, and strongly curved near base as seen from side, and densely hairy along ventral margin and apical area; trabes slender and long; siphon moderately long and slender, somewhat thicker towards base, with an obscure swelling near apex, from which it is suddenly tapered to apex, extreme apex slightly sinuous, siphonal capsule with robust outer branch and narrow and curved inner branch.

♀ genitalia as stated previously and spermatheca as shown in fig. 8H.

Length 4.1-4.7 mm; width 3.2-3.5 mm.

SPECIMENS EXAMINED: S. INDIA.: 1♀, Singera, Nilgiri Hills, 1020 m, V.1948 P. S. Na-

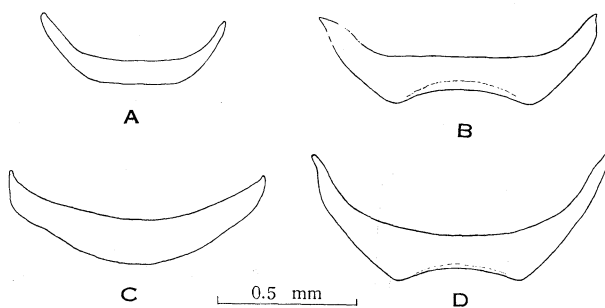


Fig. 5. Eighth abdominal sternite of ♂: A, *Plotina versicolor*; B, *Sphaeroplastina hainanensis*; C, *Haemoplotina coccinea*; D, *Buprestodera mimetica*.

than; 1♂, Ammatti, S Coorg, 930 m, XI.1952, Nathan (all BISHOP); 2 ex., Sidapur, Coorg, 31.X.1917, Y. R. Rao, (determined to this species by A. Kapur in 1948); 2 ex, same locality, 16-18.XI.1912, T. B. Fletcher; 1 ex., Bababudin Hills, 1200-1500 m, Mysore, 2-12. XI.1912, Fletcher (all USNM).

DISTRIBUTION: S. India.

Buprestodera inornata Miyatake, new species Fig. 9A-E.

Body rounded oval, moderately convex; bright carmine-red, strongly shiny; head dark red-brown, with mandibles piceous black at tips, antennal clubs and maxillary palpi more or less piceous. Venter including all coxae reddish or brownish testaceous, elytral epipleura and ab-

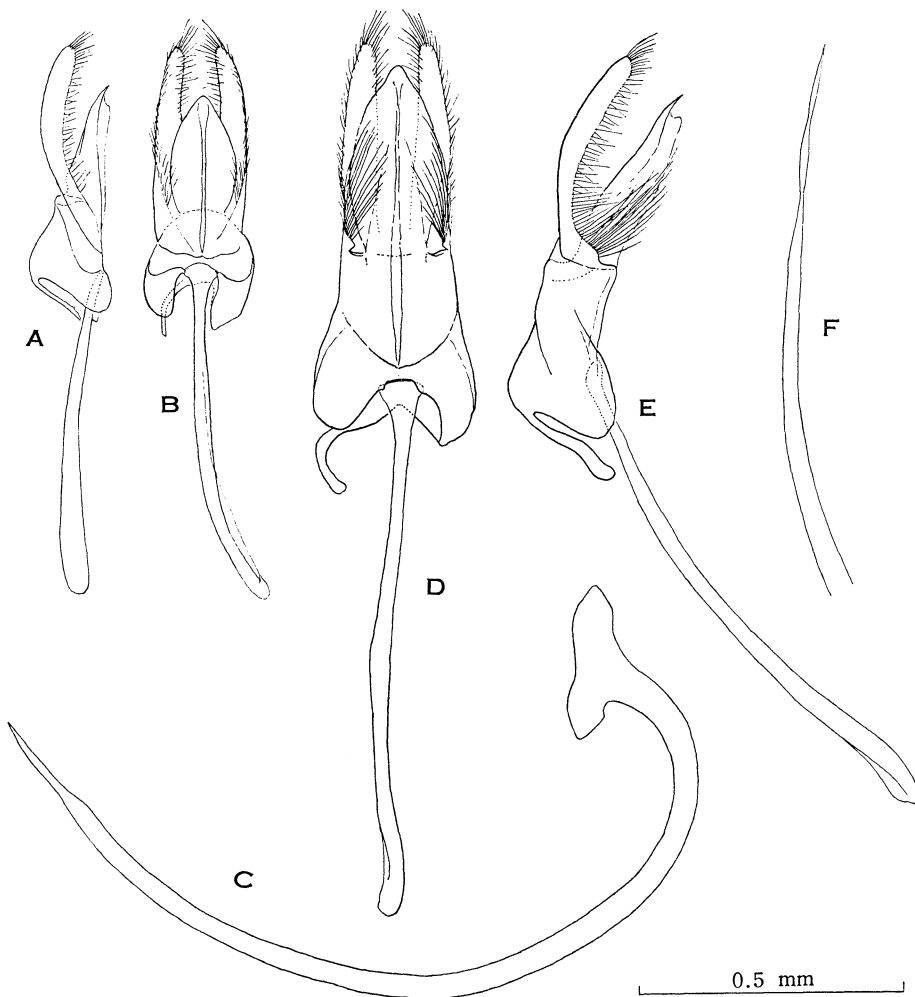


Fig. 6. Lateral and ventral views of tegmen and siphon of ♂ genitalia: A-C, *Plotina versicolor*; D-F, *Sphaerplotina hainanensis*,

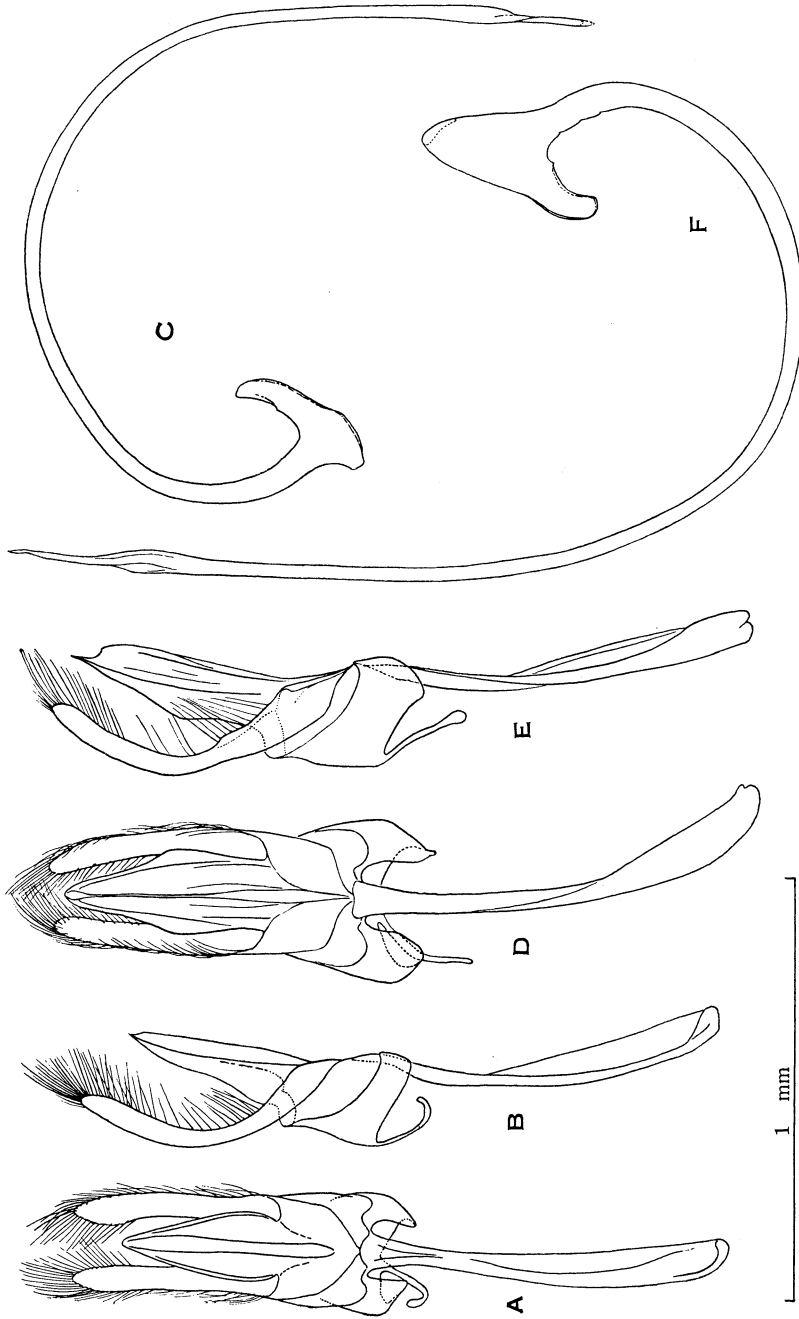


Fig. 7. Lateral and ventral views of tegmen and siphon of ♂ genitalia: A-C, *Haemoplotina coccinea*; D-F, *Bu-
prestodera mimetica*.

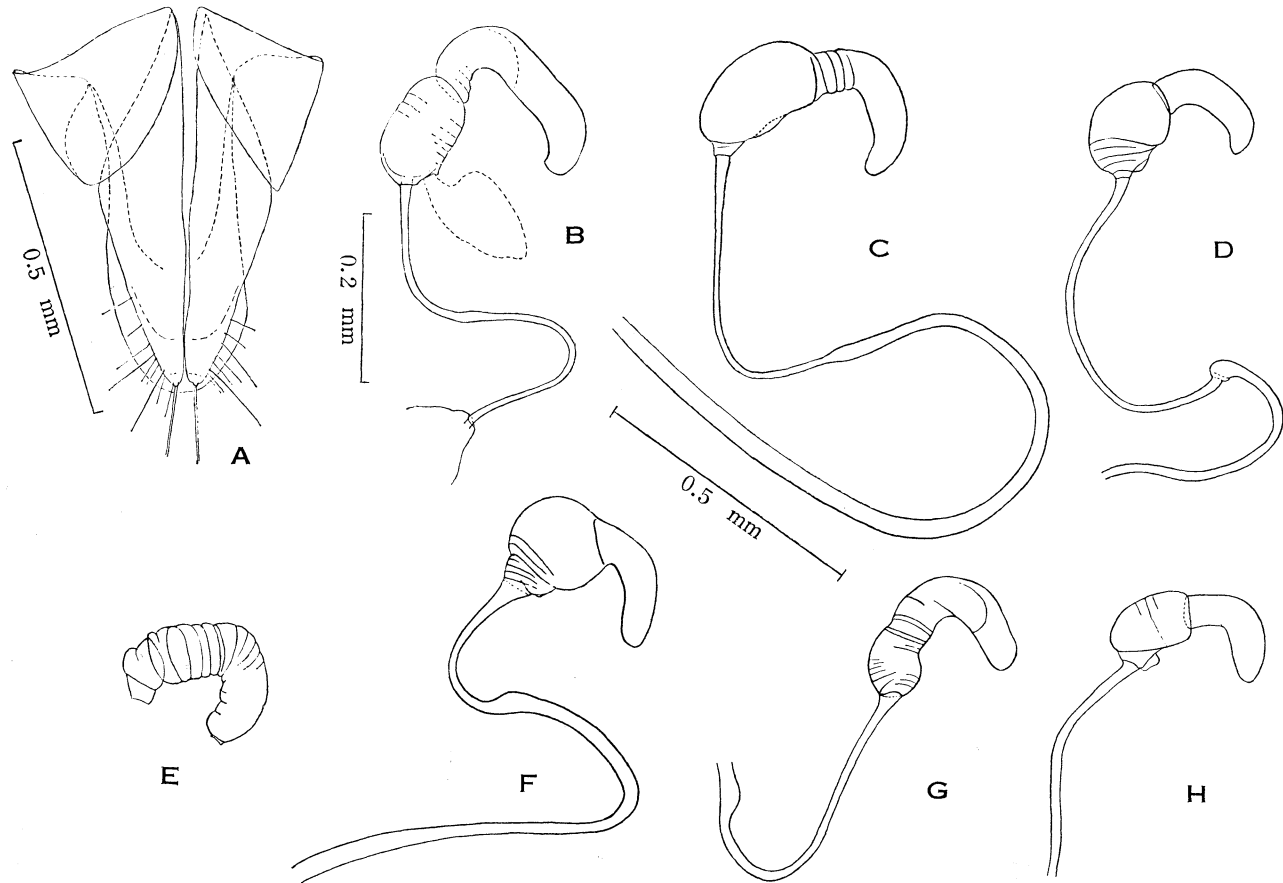


Fig. 8. ♀ genitalia. Genital segments: A, *Plotina versicolor*. Spermatheca: B, *Plotina versicolor*; C, *P. muelleri*; D, *Sphaerplotina hainanensis*; E, *Haemoplotina coccinea*; F, *Palaeoneis aurantiaca*; G, *Paraplotina flavomaculata*; H, *Buprestodera mimetica*.

dominal sternites somewhat paler. Legs piceous to blackish piceous, except tarsi dark reddish brown and claws yellowish brown.

Head moderately closely and somewhat coarsely punctured and sparsely covered with fine, subdepressed yellowish hairs. Pronotum about $2\times$ as wide as long (60: 32); anterior corners more rounded than in *mimetica*; sides gently but distinctly arcuate; basal line feeble but more distinct than that of *mimetica*; surface finely, somewhat unevenly and closely punctured, punctures being somewhat coarser than in *mimetica*, interstices smooth. Scutellum almost impunctate. Elytra rounded, about as long as wide conjointly, sides strongly rounded and coarsely beaded as in *mimetica*; surface closely covered with double punctures; fine and obscure punctures being distributed on whole part and somewhat finer than those on pronotum, and comparatively large but not deeply impressed, punctures being sparsely distributed behind humeral callus and uneven in size. Prosternum formed as in *mimetica*, but intercoxal process more robust; propleural fovea larger and oval; mesosternum finely and sparsely punctured, mesepimera strongly alutaceous and coarsely punctured; metasternum more sparsely and finely punctured than on mesosternum, mesocoxal plate finely alutaceous and very coarsely punctured. Abdominal sternites much more strongly punctured than in *mimetica*, especially so on 1st sternite; femoral line of 1st evenly and strongly curved, extending beyond apical $1/9$ length of sternite and forming a regular semicircular plate, which is distinctly alutaceous and with very coarse punctures at basal $1/2$ (fig. 9D); 5th sternite in ♂ gently rounded behind; 8th sternite broadly emarginate behind, each posterior corner somewhat rounded (fig. 9E).

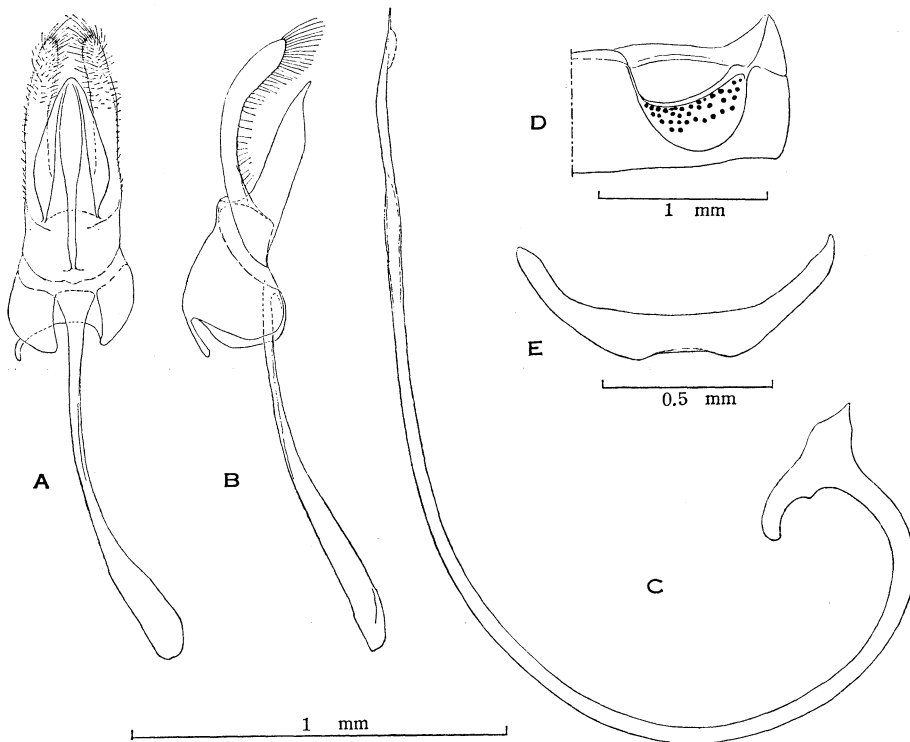


Fig. 9. *Buprestodera inornata*: A-C, ventral and lateral views of tegmen and siphon of ♂ genitalia; D, left $1/2$ of 1st abdominal sternite; E, 8th abdominal sternite of ♂.

♂ genitalia as in fig. 9 A-C; median lobe of tegmen comparatively small, elongate pentagonal, with bluntly pointed apex, about 2× as long as wide, widest at basal 1/3, opening wide, as seen from side gradually tapering to apex; lateral lobes distinctly longer than median lobe, rather slender, as seen from side gently curved and slightly clavate apically, inner surface rather sparsely hairy; basal piece wide, with a slender process at base; trapes elongate and slender; siphon long and slender, apical part slightly sinuous and with a small membranous swelling near extreme apex, which is acicular; siphonal capsule with short triangular outer branch and narrow and curved inner branch.

♀ not studied.

Length 4.0 mm; width 3.15 mm.

Holotype ♂, Anamalai Hills, Cinchona, 1050 m, Madras State, S. India, V.1967, P. S. Nathan, in the collection of Ehime University (ex coll. S. Hisamatsu).

Differing from *B. mimetica* Sicard in the structure of the male genitalia, elytral punctures, femoral lines of the 1st abdominal sternite, and in the coloration mentioned in the above key.

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