

A REVISION OF THE ASIATIC *IBALIINAE*  
(*Hym*, *Cynipidae*)<sup>1)</sup>

by

T. MAA (MAA TSING-CHAO)  
(Taiwan Agric. Research Institute, Taipei)

Subfamilia *Ibaliinae* (C. G. THOM.), 1862

This subfamily is heretofore only known from its type-genus, and as the diagnosis given by previous writers seems to be rather inadequate, a redefinition is given below.

Mandibles 3-dentate, usually the dentation and foveation on the left one more pronounced than the right. Maxillary palpi (fig. 1-2) 5-segmented: labial palpi (fig. 3-4) 3-segmented. Antennae 15 ( $\sigma^7$ )<sup>2)</sup> or 13 ( $\text{♀}$ ) segmented. Fore wings (fig. 5-6) with the "radial cell" ( $2r$ ) very long and completely closed or nearly so; "cubital cells" 2 or 3 in number: the first one ( $1r$ ) long, narrow, and closed; the second or the "areola" ( $1m$ ), when present, small, triangular; the apical ( $2m$ ) very long, more than 3 or 4 times as long as the first, apically strongly divergent and opened; vein  $im$ , when present, interstitial with  $rm$ , or nearly so;  $M$ -stem usually shorter than  $mcu_1$ ;  $icu$  interstitial with  $mcu_1$ , apically evanescent. Hind wings (fig. 7-8) each with 2-3 hamuli and 3 veins; the submarginal vein ( $C+Sc+R+M$ ) basally usually strongly thickened and curved, apically extending almost to wing-apex; the "basalis" ( $mcu$ ) long; the "analis" ( $Cu + 1A$ ) basally weakly sclerotised. Hind legs with the 2nd tarsomeres latero-apically each adorned with a long appendix, which is apically extending at least beyond the level of the base of the 4th tarsomere. Abdomen (cf. fig. 17) in  $\text{♀}$  more or less knife-like, strongly compressed bilaterally, and sharply keeled both dorsally and ventrally; tergite V being the longest of all, the basal 4 tergites nearly of equal length, the VI sometimes entirely concealed under the V; sternites scarcely exposed, the I short, the II-V separated or consolidated; abdomen in  $\sigma$  keeled or with dorsal hair-bands.

<sup>1)</sup> Contribution No. 14 from the Division of Systematic Entomology, Department of Economic Zoology, Taiwan Agricultural Research Institute, published with the approval of the Director of the Institute.

<sup>2)</sup> The antennae of the males of *Ibalia japonica* MATSUM. and *I. takachihoi* YASUM. were described as only 14 segmented.

Genus *Ibalia* LATR., 1802

## Key to Asiatic species

1. Propodeum postero-laterally unarmed; apical appendix of the 2nd tarsomere of leg III apically slightly extending beyond the level of the base of the 4th tarsomere; head and thorax black; abdomen dominantly red; legs dominantly reddish brown; vein *M*-stem in the fore wing distinctly shorter than *mcu*<sub>1</sub>. ♂ 9-11 mm, ♀ 9-13 mm.  
..... **drewseni** BORRIES.
- Propodeum postero-laterally armed with 1 or 2 horn-like tubercles above each coxa ..... 2
2. Body entirely black, at most with tegulae, legs and venter of abdomen obscurely tinted with brown; antennal segment III slightly shorter than the IV; pronotum with the posterior submarginal ridge medially distinctly incised; apical appendix of the 2nd tarsomere of leg III apically slightly extending beyond the level of the base of the 4th tarsomere; vein *M*-stem in the fore wing only  $\frac{1}{2}$  as long as *mcu*<sub>1</sub>; costal and anal margins of the cell *1r* parallel to each other; propodeum postero-laterally with only 1 horn-like tubercle above each coxa. ♀ 11.5-16 mm..... **suprunenkoi** G. JAC.
- Body more or less richly pale-marked; antennal segment III more or less longer than the IV; pronotum with the posterior submarginal ridge usually not medially incised; apical appendix of the 2nd tarsomere of leg III apically extending as far as to the level of the midpoint of the 4th tarsomere; vein *M*-stem in the fore wing more or less longer than  $\frac{1}{2}$  of the *mcu*<sub>1</sub>; costal and anal margins of the cell *1r* distinctly convergent apicad ..... 3
3. Body including antennae and legs entirely brownish yellow, except the extreme apices of antennae, antero-lateral areas of pronotum, median area of mesonotum and of mesosternum, and anterior margin of scutellum and of mesopleura, which are tinted with black or brownish black; propodeum postero-laterally armed with 2 horn-like tubercles above each coxa; vein *M*-stem in the fore wing scarcely shorter than *mcu*<sub>1</sub>. ♀ 18-21 mm..... **mirabilis** YASUM.
- Body more or less very richly black-marked, antennae with the basal half or both extremities black or brownish black; propodeum postero-laterally with only 1 horn-like tubercle above each coxa..... 4
4. Antennae in ♂ with the basal half black and apical half orange-yellow, in ♀ dark brown and with the intermediate segments fulvous; head and thorax richly yellow marked; abdomen with yellow bands on tergites I-IV (♂) or I-VI (♀), sternites in both sexes entirely yellow; mesal orbits weakly converging cephalad; vein *M*-stem in the fore wing distinctly shorter than *mcu*<sub>1</sub>; lateral pronotal slopes superiorly almost transversely striated, inferiorly shining, non-striat-

- ed, but finely, scatteredly punctate. ♂ 18 mm, ♀ 15-16 mm.....  
 ..... **japonica** MATSUM.
- Antennae reddish brown, with segments I, II, III (basal half) and XI and following segments black; head and thorax entirely black except tegulae reddish brown; abdomen in ♂ entirely black, not yellow marked, in ♀ at most with tergites IV-VI and sternites yellow marked. .... 5
5. Abdomen in ♀ entirely reddish brown; legs also reddish brown, with coxae (apically brownish) and trochanters black. ♀ 14.5 mm.....  
 ..... **jakowlewi** G. JAC.
- Abdomen in ♂ entirely black, in ♀ with sternites and lateral oblique markings on tergites IV-VI yellow; legs black, with femora (apices of the I-II<sup>1</sup>) and anterior margin of the II), tibiae (I-II, and bases of the III) and tarsi brownish yellow; mesal orbits strongly convergent cephalad; vein *M*-stem in the fore wing slightly longer than *mcu*<sub>1</sub>; lateral pronotal slopes entirely covered with fine, longitudinal striato-punctuation. ♂ 16 mm, ♀ 15 mm..... **takachihoi** YASUM.

**Ibalia drewseni** BORRIES, 1891. ♂ ♀.

*I. drewseni* BORRIES (1891): 57 ♀ ♂ (Denmark; Piedmont).—D.T. & KIEFF. (1902): 81.—KIEFF. (1905): 520 ♀ ♂.—D.T. & KIEFF. (1910): 20, 21 ♀ ♂.—SCHMIED. (1930): 389.—YASUM. (1937): 14, 15, pl. 1 ff. 9-10 ♀ (Hungary; Saghalien).

**Habitat:** Denmark; Hungary (Budapest); Italy (Piedmont); Saghalien (Kashiho).

**Host:** *Sirex juvencus* (LINN.) (*vide* BORRIES).

**Ibalia jakowlewi** G. JAC., 1899. ♀.

*I. jakowlewi* JAC. (1899): 288 ♀ (Irkutsk).—D.T. & KIEFF. (1902): 81.—D.T. & KIEFF. (1910): 20, 22 ♀.

**Habitat:** Transbaikalia (Irkutsk).

**Ibalia japonica** MATSUM., 1912. ♂ ♀.

*I. japonica* MATSUM. (1912): 161, pl. 52 f. 9 ♀ (Yezo: Sapporo).—MATSUM. (1930): 147, pl. 15 f. 9 (Eng. summ.: 53) ♀.—MATSUM. (1931): 76, 416 ♀.—HIRAY. (1933): pl. 53 f. 5 ♀ (Tokyo).—MIH. (1936): 469 (Nikko).—YASUM. (1937): 13, 14, 17, pl. 1 ff. 7-8 ♀ ♂ (Tokyo).

*I. japonicus* Tos. (1932): 94 (Osaka).

**Habitat:** Yezo (Mt Moiwa), Honshu (Nikko, Osaka, Tokyo).

**Ibalia mirabilis** YASUM., 1943. ♀.

*I. mirabilis* YASUM. (1943): 103, f. 1 ♀ (Formosa: Sakahen).

**Habitat:** Formosa (Sakahen). New distributional record: Musha, 21. V. 1947 (S. T. YIE), 1 ♀ (Taiwan Agric. Inst.).

<sup>1</sup> In YASUMATSU's (1937) synoptic key, the "apex of femora of all legs" was stated to be yellow, whereas in the original description, yellow is restricted to the "apex of fore and mid-femora."

The following notes may serve as a supplement to the original description:

Pronotum with the antero-lateral corners pitchy black. Fore wings with the vein  $Cu_2 + 1A$  yellow; veins in hind wings also yellow, except for the submarginal vein which is a little duller.

Body (except abdomen) thinly covered with short, yellow hairs. Clypeus transverse, very shining, impunctate, except for a few setigerous

punctures near the broadly rounded anterior margin; the postero-medial area deeply depressed. Frons confluent reticulato-punctate, weakly raised along the anterior margin of antennal socket; the median line with its anterior half weakly, narrowly carinated, whereas its posterior half is broadly, shallowly depressed. Malar spaces longitudinally

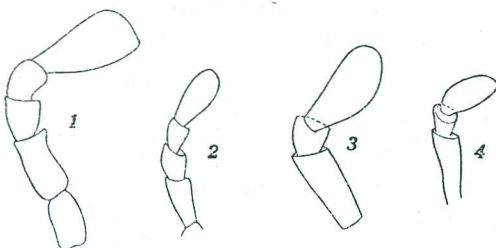


Fig. 1-4. Maxillary (1-2) and labial palpi (3-4) of *Ibalia mirabilis* YASUM. ♀ (1, 3) and *Myrmoibalia divergens aureopilosa* MAA ♀.

striated, anteriorly almost truncated; the length and breadth vs. the length of the 3rd antennal segment about 16:22:35.<sup>1)</sup> Eyes about  $52 \times 37$ . Cheeks very broad, with the cephalic plane laterally adorned with rather sparse but very coarse punctures, mesally (along the lateral orbit) alutaceous, impunctate, whereas the lateral plane is strongly longitudinally striated. Ocellar triangle surrounded by radiating striae. Ocello-ocular interspaces weakly depressed. Antennae gradually attenuated toward the apex. Pronotum transversely striated; the posterior submarginal ridge very strongly developed, rounded, not incised in the middle; the lateral slopes discally convex and sparsely punctate, anteriorly not raised. Scutellum (fig. 12) with the posterior lobes strongly reflexed. Mesepisterna transversely striated, inferiorly much more strongly so; mesepimera shining, weakly convex, exceedingly finely, longitudinally striated. Metapleura transversely reticulato-striated. Propodeum with 2 horn-like tubercles situated posteriorly and postero-laterad to the spiracle respectively; the median area distinctly longer than broad (ca 3 : 2), strongly keeled, subrectangular, very weakly narrowed inferiorly. Coxae more notably the III (fig. 9) dorso-medially strongly depressed, dorso-laterally very strongly carinated, and vertically raised into a triangular projection at a point of about basal three-fourths; apical appendix of the 2nd tarsomere of leg III apically extending as far as near the level of the mid-point of the 4th tarsomere (YASUMATSU says and figures:

<sup>1)</sup> YASUMATSU says: "Malar space as long as wide". In the present paper, the breadth is measured along the anterior margin and from the lateral extremity of clypeus to that of the gena.

slightly beyond the apex of the 3rd tarsomere!). Relative lengths of abdominal sternites I-IV about 67 : 5 : 9 : 6. Palpi and wings as figured (fig. 1, 3, 5, 7).

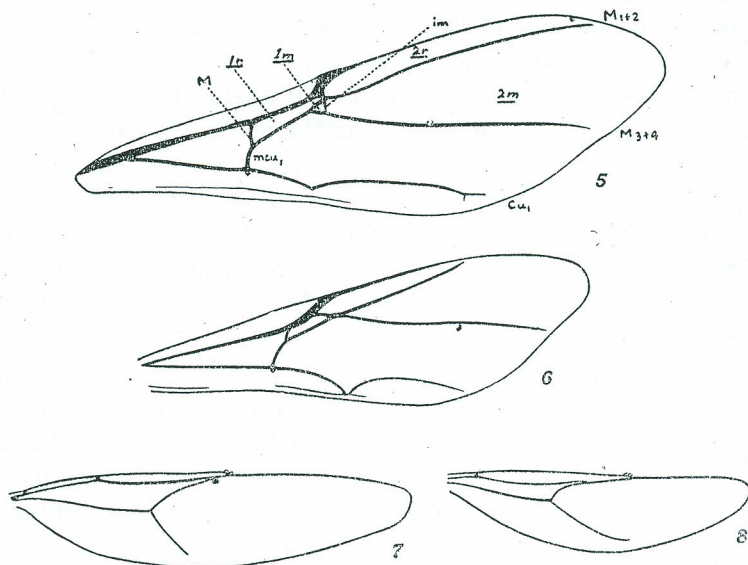


Fig. 5-8. Fore (5-6) and hind wings (7-8) of *Ibalia mirabilis* YASUM. ♀ (5, 7) and *Myrmoibalia divergens aureopilosa* MAA ♀ (6, 8).

***Ibalia suprunenkoi* G. JAC., 1899. ♀.**

*I. suprunenkoi* JAC. (1899): 289 ♀ (E. Siberia: between Douay & Alexandrovsk).—D.T. & KIEFF. (1902): 81.—D.T. & KIEFF. (1910): 20, 21, ♀.

*I. sachalinensis* MATSUM. (1911): 98 ♀ (Saghalien: Mauka).—YASUM. (1937 a): 158 (= *picea*) (syn. nov.).

*I. picea* MATSUM. (1912): 163, pl. 52 f. 11 ♀ (not indicated as sp. nov.!) — MATSUM. (1930): 148, pl. 15 f. 11 ♀.—MATSUM. (1931): 76, f. 417 ♀.—YASUM. (1937): 14 pl. 1 ff. 11-12 ♀.—YASUM. (1937 a) 158 (= *sachalinensis*).

**Habitat:** Maritime Prov. (between Douay & Alexandrovsk.); Saghalien (Mauka). New distributional record: Tomarikishi, Shisuka, Saghalien, 23-30. VII. 1930 (T. SHIRAKI), 1 ♀ (Taiwan Agric. Inst.).

G. JACOBSON (1899) has published a detailed description of this species, but the following additional points may be noted.

Ultimate segment of the antenna apically reddish brown. Fore wings with cell  $c + sc$  and  $1r$  apically rather strongly infuscated; veins brownish black, with  $Cu_1$  (apical section) and  $Cu_2 + 1A$  in the fore wing and all veins in the hind wing (excluding  $C + Sc + R + M$  stern) brownish yellow.

Body (except abdomen) thinly covered with short, silvery hairs. Clypeus transverse, anteriorly depressed, densely, confluent punctate, and posteriorly weakly raised, shining, sparsely punctate; the anterior margin broadly rounded. Mesal orbits very slightly convergent cephalad, almost parallel to each other. Frons discally weakly tumescent. Malar

spaces anteriorly incised; the anterior breadth, minimum length and maximum length *vs* the length of the 3rd antennal segment about 12:12:15:20. Eyes about  $31 \times 20$ . Cheeks mesally flattened, alutaceous, with a few coarse punctures near the lateral striated area. POL, OOL and ocello-occipital line about 12:5:4. Ocello-ocular interspaces weakly depressed, obliquely striated. Antennae about as long as the abdomen, slightly and gradually thickened towards the apex, all the segments each longer than thick, segment I being by far the thickest, about 1.5 times as

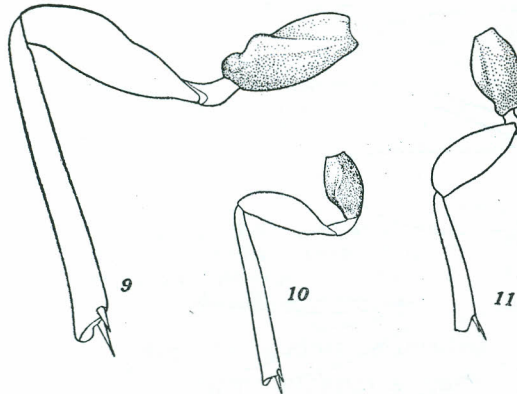


Fig. 9-11. Hind leg (♀) of *Ibalia mirabilis* YASUM. (9). *I. suprunenkoi* G. JAC. (10) and *Myrmoibalia divergens divergens* MAA (11) in lateral aspect.

thick as the III, very weakly clavate, the base distinctly curved and attenuated; segment II clavate; relative lengths of the segments about 26:14:40:44:44:40:33:29:22:18:15:13:27. Thorax (including tegulae) narrower than head, *ca* 28:31. Lateral pronotal slopes shining, very feebly punctate, with the anterior and inferior marginal area striato-punctate. Scutellum (fig. 13) as figured. Mesepisterna longitudinally striated; mesepimera shining, impunctate, weakly convex. Metapleura weakly convex, coarsely reticulated. Fore wings with the costal and anal margins of the cell *1r* subparallel to each other; vein *M*-stem about  $\frac{1}{2}$  as long as *mcu*<sub>1</sub>. Coxae III (fig. 10) dorso-medially rather strongly depressed, dorso-laterally each with a vertical pyramideal projection at a point of about basal two-thirds; femora III very thick, dorsally without a constriction near the mid-point; relative lengths of the tibia and basitarsus about 113:70. Abdominal tergite VI, in profile, posteriorly distinctly protruding caudad near the middle; relative lengths of sternites I-IV about 25:5:6:5.

***Ibalia takachihoi* YASUM., 1937. ♂ ♀.**

*I. takachihoi* YASUM. (1937): 13, 14, 15, pl. 1 ff. 1-6 ♂ ♀ (Kyushu: Hikosan).—YASUM. (1943): 89-92, ff. 1-5 (prepupa).

**Habitat:** Kyushu (Hikosan).

**Host:** *Tremex longicollis* KNW. (*vide* YASUMATSU).

Known only from 3 ♂, 1 ♀, probably no more than a color variety or geographical race of *I. jakowlewi* G. JAC.

**Genus *Myrmoibalia* novum**

The members of this new genus (particularly the males), as indicated by the name, bear a very strong superficial resemblance to the mutillids

or velvety ants in the color pattern and abdominal hair-bands. It stands very near *Ibalia* LATR., and can be immediately distinguished from the latter by the absence of "areola" in the fore wing and by the well developed hair-bands on apical abdominal tergites.

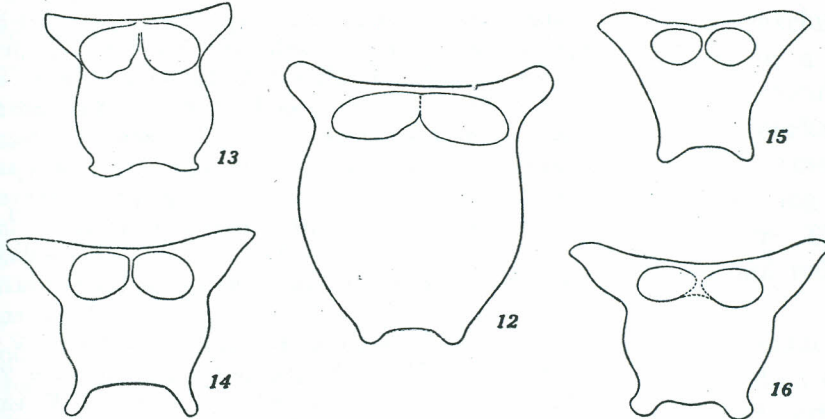


Fig. 12-16. Scutellum of *Ibalia mirabilis* YASUM. ♀ (12), *I. suprunenkoi* G. JAC. ♀ (13), *Myrmoibalia divergens divergens* MAA ♀ (14), *M. d. subtilis* MAA ♂ (15) and *M. confluens* MAA ♀ (16).

	<i>Ibalia</i> LATR.	<i>Myrmoibalia</i> , gen. nov.
Palpi (fig. 1-4)	strongly clavate.	scarcely clavate.
Cheek	anteriorly strongly ridged along the lateral margin.	rounded-off, laterally not ridged.
Malar space	distinctly shorter than the scape, laterally not ridged.	about 1.5 (♂) or 2 (♀) times as long as the scape, laterally ridged.
Oculo-occipital line	distinctly greater than OOL.	distinctly smaller than OOL.
Mesepimera	small, well defined.	large, poorly defined.
Fore wing (fig. 5-6)	vein <i>im</i> present, thus forming the "areola"; cell <i>bm</i> costo-apically less acute; cell <i>2r</i> about as long as $\frac{1}{2}$ the wing; cell <i>3cu</i> almost thrice as long as the <i>2cu</i> .	vein <i>im</i> absent, thus without the "areola"; cell <i>bm</i> costo-apically very acute; cell <i>2r</i> only about as long as $\frac{1}{3}$ the wing; cell <i>3cu</i> less than twice as long as the <i>2cu</i> .
Hind wing (fig. 7-8)	basal marginal vein ( <i>C</i> + <i>Sc</i> + <i>R</i> + <i>M</i> ) strongly developed, distinctly longer than $\frac{1}{2}$ the basal section of the <i>Cu</i> + <i>1A</i> ; only with 2 hamuli.	basal marginal vein poorly developed, only about as long as $\frac{1}{3}$ the basal section of the <i>Cu</i> + <i>1A</i> ; with 3 hamuli.
Hind leg (fig. 9-11)	longer, tibia plus basitarsus slightly longer than abdomen; coxa dorso-laterally more or less tuberculated or tumescent at a point of about basal two-thirds.	shorter, tibia plus basitarsus distinctly shorter than abdomen; coxa dorso-laterally not tuberculated nor tumescent at all.

	<i>Ibalia</i> LATR.	<i>Myrmoibalia</i> , gen. nov.
Abdomen (fig. 17-20)	<p>distinctly longer than head plus thorax, practically impunctate, without hair-bands, very strongly compressed and keeled in both sexes (excluding tergites I and V-VI in ♂), in dorsal aspect broadest near the base, with the maximum breadth about <math>\frac{1}{3}</math> (♂) or <math>\frac{1}{2}</math> (♀) as great as the intertegular distance; tergite V in ♀ distinctly shorter than its 4 preceding ones taken together, usually even shorter than II + III + IV; the VI in ♀ well exposed in repose; sternites I-V in ♀ all well separated from one another; the I-VI in ♂ all visible; ♂ genital orifice situated posteriorly to the sternite VI.</p>	<p>scarcely longer than head plus thorax, strongly punctate, apical tergites with well developed hair-bands, less strongly compressed, keeled only in ♀, in dorsal aspect broadest near the middle, with the maximum breadth as great as the intertegular distance, or nearly so; tergite V in ♀ as long as the 4 preceding ones taken together or nearly so; the VI in ♀ almost entirely concealed under the V in repose; sternite I in ♀ well defined, the II-V entirely consolidated; the I-IV in ♂ entirely concealed under the tergite, leaving only the V (consolidated with some of its preceding ones?) visible; ♂ genital orifice situated posteriorly to the sternite V.</p>

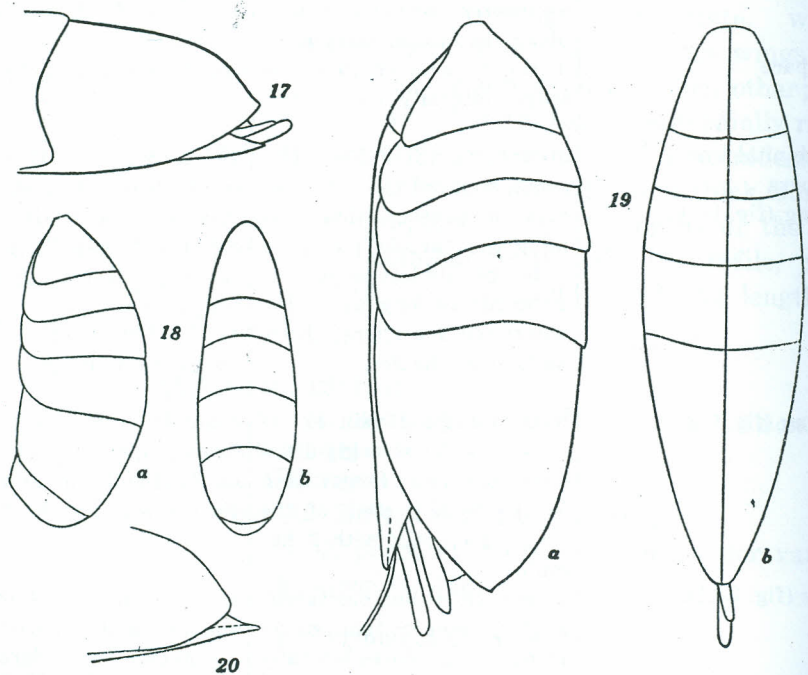


Fig. 17-20. Abdomen of *Myrmoibalia divergens divergens* MAA (17 ♀, 18 ♂), *M. d. aureopilosa* MAA (19 ♀) and *M. confluens* MAA ♀. All in lateral aspect except for 18b and 19b which are in dorsal aspect.



Genotype: *Myrmoibalia divergens*, sp. nov.

Habitat: Oriental Region (Indochinese subregion).

*Myrmoibalia divergens*, sp. nov. ♂ ♀.

♀. — Black. Mandibles (basally), pedicel and ultimate antennal segment more or less with obscure reddish tints. Pronotum (excluding anterior slope) and mesothorax (excluding scutellum) red; in a few specimens, however, the median dorsal band of pronotum, the mesonotum, and the femur-receiving grooves on mesepisterna more or less darkened. Wings (fig. 6, 8) basally yellow, apically infuscated; veins brownish black, except for  $Cu_1$  (apical section),  $Cu_2 + 1A$  in the fore wing and  $mcu$  and  $Cu + 1A$  in the hind wing, which are yellowish brown. Tibiae and tarsi I-II, abdominal sternites and terebra more or less dull reddish brown.

Body thinly covered with silvery hairs, those on propodeum and tibiae yellowish, much longer and thicker, and those on the median third of the bases of abdominal tergites III-V (more notably on the V) forming distinct yellowish hair-bands and being very long, for instance, those on the V, almost as long as the tergite II; tergites I with very scattered, short hairs. Head uniformly reticulato-punctate, except for the lateral areas of vertex, which are more coarsely punctate and with shining interpunctural spaces. Clypeus as long as broad, almost hexagonal. Frons weakly convex, slightly raised along the anterior margins of antennal sockets; the median line weakly carinated. Mesal orbits slightly divergent cephalad. Malar spaces about  $2 \times 1$ , anteriorly almost truncated, laterally each with a short longitudinal ridge producing from the mandibular base. Eyes about  $3 \times 2$ . OOL, POL and ocello-occipital line about 11:7:4. Antenno-ocellar (along the median frontal line) and ocello-ocular interspaces slightly depressed. Antennae evenly thick, with a total length about 2.4 times as the breadth of head; the scape clavate, curved at extreme base, slightly thicker than the following segments; pedicel weakly clavate, about as long as broad; flagellar segments each longer than thick; relative lengths of the segments about 28:10:25:30:30:31:30:29:24:22:19:17:29. Thorax (including tegulae) narrower than head, ca 31:34. Pronotum uniformly transversely striated; the posterior submarginal ridge rounded, medially very weakly incised, and weakly upturned; the posterior marginal area flattened; the lateral slopes anteriorly strongly ridged and antero-inferiorly with a few punctures amongst the striae. Scutellum (fig. 14) weakly convex, strongly reticulat-ed; the 2 anterior pits separated from each other by a median carina; the posterior lobes apically very prominent and strongly divergent, very weakly recurved. Mesopleura superiorly obliquely reticulato-striated, inferiorly transversely so; the raised postero-median area as well as the

femur-receiving grooves (posterior 2/3) smooth, impunctate. Metapleura strongly reticulated. Propodeum with 2 horn-like projections situated posteriorly and laterad to the spiracle respectively; the median area slightly longer than broad, reticulated, strongly concave, medially weakly carinated, laterally very weakly curved. Wing venation as figured (fig. 6, 8). Coxae III (fig. 11) dorsally almost flattened, medially scarcely depressed, the dorso-lateral margin very faintly edged, not tuberculated;

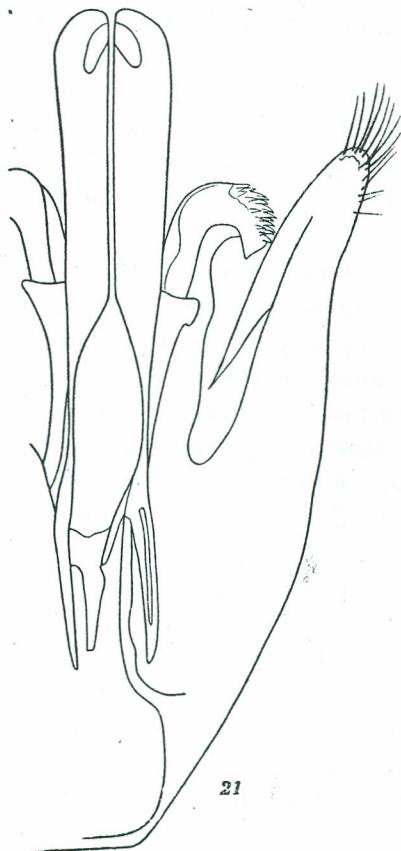


Fig. 21. ♂ Genitalia of *Myrmobalia divergens divergens* MAA, paratype.

16 respectively. Relative lengths of the tibia and basitarsus III about 13:8. Pronotum with the posterior submarginal ridge not medially incised. Abdomen (fig. 18) not keeled, tergite V posteriorly strongly and rather densely punctate; the VI coarsely, densely punctate, thinly covered with moderately long hairs; sternite V finely, scatteredly punctate, posteriorly with a weakly depressed, very strongly punctate, roundish area. Genitalia as in fig. 21. Length about 8-9 mm, fore wing 6.5-7 mm.

Kiangsu: Chingkiang, 8.X.1917 (O. PIEL) 1 ♀ (Mus. Heude). Nan-king, 3.XI.1923, 2 ♀ (MAA coll.). Shanghai, 13-17.X.1932 (O. PIEL, rearing No. 2032), 3 ♂, 9 ♀ (including holotype ♀ and allotype ♂). Holo-

femora III short, strongly clavate, about  $52 \times 21$ ; relative lengths of the tibia and basitarsus about 17:11; apical appendix of the 2nd tarsomere apically extending as far as near the level of the mid-point of the 4th tarsomere. Abdomen (fig. 17) strongly keeled; tergite I medially evenly covered with very fine, scattered punctures, laterally impunctate; the II-IV anteriorly with rather coarse, dense punctures, and posteriorly polished, impunctate, the inferior halves of the lateral slopes, however, being very sparsely and finely punctate; tergite V very sparsely, rather finely punctate, with the anterior fourth medially coarsely, very densely punctate, laterally more sparsely so, apically (in profile) pointed; sternite V coarsely, rather densely punctate near the median line, apically not extending to the level of the apex of tergite V. Length about 9-14 mm, fore wing 6.5-10 mm.

♂. — Similar to the ♀. Malar spaces about  $5 \times 4$ . Antennae weakly compressed, about as long as thrice the breadth of head; relative lengths of segments I-IV and of XIII-XV about 22:8:18:24 and 18:17.

and allotypes, and 5 paratypes (♀) in Musée Heude, further 8 paratypes (2 ♂, 6 ♀) in MAA coll.

Host: *Tremex fuscicornis* (FABR.) (*vide* O. PIEL).

*Myrmoibalia divergens* MAA, subsp. *aureopilosa* nov. ♀.

♀. — Similar to the typical form. Thorax (excluding cervical area) entirely red. Hairs yellowish, the abdominal hair-bands golden yellow. Antennae thicker, shorter, only about 1.9 times as long as the breadth of head; relative lengths of the segments about 36:14:36:40:38 35:34:29:24:21:20:34. Apical appendix of the 2nd tarsomere of leg III apically almost extending to the level of the apex of the 4th tarsomere. Abdominal tergite V (fig. 19) apically more finely and sparsely punctate, but less sharply pointed. Length about 16 mm, fore wing 12 mm. ♂ unknown.

Fukien: Ta-Chu-Lan, Shaowu, 15.X.1943 (T. MAA & GENEVA T. CHAO), 1 ♀ (MAA coll.).

*Myrmoibalia divergens* MAA, subsp. *subtilis* nov. ♂.

♂. — Similar to the typical form. Scutellum entirely red. Wings a little darker. Scutellum (fig. 15) longer, with the posterior lobes acute, less prominent, apically not strongly divergent. Propodeum with the median area not keeled, but slightly broader than long. Length about 9.5 mm, fore wing 7 mm. ♀ unknown.

Formosa: Sozan, Taihoku, 3.IV.1932 (T. YOSHIDA), 1 ♂, antennae and hind legs apically mutilated. Holotype in the Taiwan Agricultural Research Institute.

*Myrmoibalia confluens*, sp. nov. ♀.

♀. — Similar to the preceding species. Mesothorax including scutellum entirely pitchy black. Tibiae and tarsi reddish brown. Wings slightly darker. Abdominal hair-bands golden yellow. Antennae about 2.2 times as long as the breadth of head; relative lengths of the segments about 26:10:23:27:27:27:25:25:22:19:16:15:26. Lateral pronotal slopes discally faintly punctate, not striated. Mesopleura with the raised posterodiscal areas and femur-receiving grooves entirely smooth, impunctate. Scutellum (fig. 16) with the anterior pits confluent, not separated by a median carina; the posterior lobes less prominent and apically not strongly divergent. Median area of propodeum transversely striated; the lateral margins angulated near the middle, and anteriorly strongly convergent. Relative lengths of the tibia and basitarsus III about 83:50; apical appendix of the 2nd tarsomere apically almost extending to the level of the apex of the 4th tarsomere. Abdominal tergite V (fig. 20) coarsely, densely punctate, apically (in profile) rounded; sternite V apically ex-

tending much beyond the level of the apex of tergite V. Length about 10-11 mm, fore wing 8-9 mm. ♂ unknown.

Tonkin: Mt Bavi, 800-1000 m (A. DE COOMAN), 3 ♀, Holotype and paratype in Musée Heude, 1 paratype in MAA coll.

## LITERATURE CITED

- BORRIES, H. 1891. Ent. Medd. 3:53-57. (*Ibalia drewseni*, sp. n., biology).
- VON DALLA TORRE, K. W. & KIEFFER, J. J. 1902. Gen. Ins. 10: 81. (Generic description, list of spp.).
- VON DALLA TORRE, K. W. & KIEFFER, J. J. 1910. Das Tierreich 24:19-26. (World monograph).
- HIRAYAMA, S. 1933. Gensyoku Sensyu Kontyu Zufu. (Nat. Colored Thous. Ins.), pl. 53, f. 5.
- JACOBSON, G. 1899. Ann. Mus. St.-Petersb. 4:288-291. (*I. jakowlewi*, *suprunenkoi*, spp. n.).
- KIEFFER, J. J. 1905. ANDRE: Spec. Hym. Eur. & Algérie. VII bis. Cynipides 2:519-521. (Monograph of European spp.).
- MATSUMURA, S. 1911. J. Coll. Agric. Tohoku Univ. 4:98-99. (*I. sachalinensis*, sp. n.).
- MATSUMURA, S. 1912. Thous. Ins. Jap. Suppl. 4:161-163, pl. 52 ff. 9, 11. (*I. japonica*, sp. n.).
- MATSUMURA, S. 1930. Illustr. Thous. Ins. Jap. II. Hym.: 147-149, pl. 15 ff. 9, 11; English summary: 53-54.
- MATSUMURA, S. 1931. 6000 Illustr. Ins. Jap. Emp.: 76-77, ff. 416-417.
- MIHASHI, N. 1936. Higashiterunomiya, Nikko no Shokubutsu to Dobutsu (Plants and Animals of Nikko): 469.
- SCHMIEDEKNECHT, O. 1930. Die Hymenopteren Nord- und Mitteleuropas. 2. Auflage: 388-389.
- TOZAWA, N. 1932. List Ins. Minoo Park, Osaka: 94.
- YASUMATSU, K. 1937. Ins. Matsum. 12:13-18, pl. 1. (Synopsis of Japanese spp., *I. takachihoi*, sp. n., *japonica* ♂).
- YASUMATSU, K. 1937a. Mushi 10:158. (*I. sachalinensis* = *picea*).
- YASUMATSU, K. 1941. Ins. Matsum. 15:103-105, f. 1. (*I. mirabilis* sp. n.).
- YASUMATSU, K. 1943. Mushi 15:89-92, ff. 1-5. (Prepupa of *I. takachihoi*).