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DESCRIPTIONS OF FOUR NEW SPECIES OF THE GENUS *TRIECES* TOWNES FROM JAPAN

(HYMENOPTERA, ICHNEUMONIDAE)

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So far as I am aware, no species of the genus *Trieces* Townes has been known to occur in Japan. In the course of the present study I have found four species in Japan, all of which are new to science. The types of these new species are deposited in the Entomological Institute, Hokkaido University, Sapporo.

I wish to express my sincere gratitude to Professor C. Watanabe for his kind guidance and encouragement.

Genus *Trieces* Townes

Trieces Townes, Bol. Venezolana 5: 60, 1946; H. Townes & M. Townes, U. S. Nat. Mus. Bull. 216: 34, 1959.

Type species: *Exochus texanus* Cresson.

In 1946 this genus was originally described by Townes, being separated from the genus *Chorinaeus* Holmgren, 1856. It is a large genus probably of world wide distribution, but only the Nearctic species have been fully revised by H. Townes and M. Townes (1959). So far as their habits are known, the species of *Trieces* are solitary internal parasites of the larvae of Lepidoptera belonging to Tortricidae, Pyralidae, Geometridae and Oecophoridae.

Key to the species of *Trieces* occurring in Japan

- 1 Metapleurum with a vertical slot-like pit at hind end. Eye bare. 2
- Metapleurum without a pit at hind end. Eye hairy. 3
- 2 Metapleurum hairy. Occipital carina present. Mesopleurum without fine longitudinal wrinkles at lower hind corner. Temple weakly swollen, narrower than eye. Face yellowish.
. *homonae*, sp. nov.
- Metapleurum bare. Occipital carina absent. Mesopleurum with fine longitudinal wrinkles at lower hind corner. Temple swollen, as long as width of eye. Face blackish.
. *hokkaidensis*, sp. nov.
- 3 Metapleurum hairy on upper part. Propodeal spiracle elliptic, situated at middle. Apical margin of clypeus truncate. *flavifaciatus*, sp. nov.
- Metapleurum bare. Propodeal spiracle circular, situated behind middle. Apical margin of clypeus concave. *nigrifaciatus*, sp. nov.

Trieces homonae, sp. nov.

♀. Face wider than high, finely and densely punctate. Face and clypeus moderately

convex in profile. Apical margin of clypeus truncate (Fig. 1 A). Malar space four-fifths as long as basal width of mandible. Mandible slender, hardly tapering towards apex, with outer face coarsely punctate on basal half, the upper tooth being longer than the lower. Distance between a lateral ocellus and an eye a little longer than diameter of an ocellus. Eye bare. Occipital carina present above and laterally. Temple weakly swollen, a little narrower than eye, and densely haired. Antennae filiform, with 22-24 segments; 1st flagellar segment 1.4 times as long as wide, and equal to 2nd segment in length. Propleurum weakly convex, with dense hairs. Mesonotum moderately densely punctate. Notaulus absent. Scutellum rather long and flat, with dense hairs. Sternaulus present on entire length of mesopleurum, and weakly carinate. Dorsal end of prepectal carina not joining with but ending near front end of subtegular ridge. Mesopleurum hairy, without fine longitudinal wrinkles at lower hind corner. Metapleurum with a vertical slot-like pit at hind end, broadly hairy, with rather sharp punctures in the haired area and sharp longitudinal wrinkles on posterior 7/8 (Fig. 1 B). Propodeum strongly areolated, the costula being absent, the median basal area and areola confluent and smooth, with sparse hairs, and the spiracle elliptic, situated behind middle (Fig. 1 B). Nervulus postfulcal by 1/3 of its own length. Nervellus weakly broken near its lower 1/3. Legs stout; hind coxa densely haired; hind femur 2.4-2.6 times as long as depth, and as long as hind tibia; front tibia with six spines on dorso-apical margin (Fig. 1 C); front spur of middle tibia shorter than half length of hind spur; claws of front and middle tarsi pectinate, with nine and four teeth, respectively (Fig. 1 D). Second tergite a little shorter than wide, and equal to 3rd tergite in length. Spiracle of 1st tergite situated at basal 1/3. Third tergite with median and sublateral longitudinal carinae on about basal half. Seventh and following tergites retracted.

Black. Face, clypeus, malar space and palpi yellow (Fig. 1 A). Face often with a median dorsal spot and crescentic near each antennal socket brownish (Fig. 1 A). Clypeal foveae dark brown to black (Fig. 1 A). Mandible, scape and pedicel dark brown. Front and middle legs yellowish brown to dark brown; middle coxa except at apex and middle femur except at both ends black. Hind leg black; coxa at apex and tibia on basal 1/3, yellowish; trochanters, tibia except basal 1/3, tarsus and front spur reddish brown. Tibial spurs of front and middle legs pale yellow. Wings hyaline; stigma and veins dark brown.

The male is like the female except as below:—

♂. Malar space as long as basal width of mandible; antennae with 25-31 segments; 7th tergite visible above; mandible (except for the apical black teeth) yellow; scape black, yellowish brown beneath; pedicel and flagellum reddish brown, darker dorsally; tegula dark brown, yellow basally.

Length; body 5.0-6.5 mm., forewing 3.5-4.0 mm.

Holotype (♀): 25-iv-66, Chiran, Kagoshima, Kyushu, K. Kusigemati leg. Paratypes: 1 ♂, 22-x-62, Kagoshima, Kyushu, reared from *Homona magnanima* by K. Kusigemati; 1 ♂, 2-v-62, Satamisaki, Kagoshima, Kyushu, A. Nakanishi leg.; 1 ♂, 26-iv-63, Satamisaki, Kagoshima, Kyushu, H. Takada leg.; 1 ♀, 25-iv-66, Chiran, Kagoshima, Kyushu, K. Kusigemati leg.

Host: *Homona magnanima* Diakonoff.

Distribution: Japan (Kyushu).

On account of the metapleurum with a vertical pit, this species might belong to the "onitis group" erected by Townes, but differs from any known species belonging to this group by the bare eye and by the mesopleurum without fine longitudinal wrinkles.

***Trieces hokkaidensis*, sp. nov.**

♀. Face as wide as high, finely and moderately densely punctate. Apical margin of clypeus truncate (Fig. 2 A). Mandible strongly tapering towards apex, the upper tooth being much longer than the lower. Distance between a lateral ocellus and an eye four-fifths as long as diameter of an ocellus. Occipital carina absent. Temple strongly swollen, as long as width of eye, with rather sparse hairs. Antennae filiform, with 20 or 21 segments; 1st flagellar segment 1.3 times as long as wide. Mesonotum moderately strongly and densely punctate, sparsely punctate on posterior middle. Scutellum rather long and very weakly convex or flat, with scattered hairs and a semicircular pit at front margin. Sternaulus obsolete. Mesopleurum with fine longitudinal wrinkles at lower hind corner, with a band of dense hairs along upper rim, elsewhere with scattered hairs. Metapleurum with a vertical slot-like pit at hind end, and sharp, rather coarse longitudinal wrinkles on posterior $\frac{3}{5}$, without hairs except on upper front corner (Fig. 2 B). Propodeal spiracle very large, circular and situated behind middle (Fig. 2 B). Basal area of propodeum and areola shining and impunctate, without hairs. Nervulus postfulcal by about $\frac{1}{3}$ of its own length. Nervellus weakly broken near its lower $\frac{1}{3}$. Legs stout; hind coxa very sparsely haired on dorsal side; hind femur 2 times as long as depth; front tibia with five stout spines on dorso-apical margin (Fig. 2 C); front spur of middle tibia about as long as half length of hind spur; tarsal claws of front and middle legs strongly pectinate, with eight and seven teeth, respectively (Fig. 2 D). Abdomen rather clavate; 2nd tergite $\frac{7}{10}$ as long as wide, and $\frac{7}{10}$ as long as 3rd tergite; 3rd tergite with median and sublateral longitudinal carinae on basal half.

Black. Interantennal process broadly margined with yellowish brown (Fig. 2 A). Face often tinged with dirty yellowish brown on lower lateral area (Fig. 2 A). Palpi pale yellow. Clypeus and mandible tinged with dirty yellowish brown. Scape on under side and pedicel brownish. Flagellum yellowish brown, darker dorsally. Legs blackish brown to black; front tibia and all tarsi yellowish brown to dark brown. Wings hyaline; stigma and veins dark brown.

Length; body 2.5-3.0 mm., forewing 4.0-4.5 mm.

♂. Unkown.

Holotype (♀): 20-vi-65, Jozankei, Hokkaido, K. Kusigemati leg. Paratypes: 2♀, 25-vi-65, 1♀, 3-vii-65, Sapporo, Hokkaido, K. Kusigemati leg.

Distribution: Japan (Hokkaido).

This species is similar to the preceding species, *Trieces homonae*, but immediately distinguished from the latter by the bare metapleurum, by the lacking of the occipital carina, etc. as mentioned in the key.

***Trieces flavifaciatus*, sp. nov.**

♀. Face about 1.4 times as wide as high, finely and densely punctate. Apical margin of clypeus truncate or very weakly concave (Fig. 3 A). Malar space four-fifths as long as basal width of mandible. Mandible rather slender, tapering towards apex,

the upper tooth being rather elongate and the lower one very short. Distance between a lateral ocellus and an eye as long as diameter of an ocellus. Eye with very short, sparse hairs. Occipital carina present above and laterally. Temple moderately swollen, a little narrower than eye, with dense hairs. Antennae filiform, with 32 or 33 segments; 1st flagellar segment 1.2 times as long as wide. Propleurum rather flat, finely punctate and densely haired. Mesonotum finely and densely punctate. Scutellum rather long and very weakly convex, with dense hairs. Sternaulus obsolete. Prepectal carina distinct, and its dorsal end joining with front end of subtegular ridge. Mesopleurum hairy, with fine longitudinal wrinkles at lower hind corner. Metapleurum without a pit at hind end, with a broad band of hairs on upper posterior half and rather coarse wrinkles on posterior $2/5$ (Fig. 3 B). Propodeal spiracle elliptic, and situated at middle (Fig. 3 B). Basal area of propodeum and areola shining and very finely punctate, with a few hairs. Nervulus postfulcal by $2/5$ of its own length. Nervellus weakly broken near its lower $1/3$. Legs stout; hind coxa moderately densely haired; hind femur about 2.5 times as long as depth; front tibia with six spines on dorso-apical margin (Fig. 3 C); spur of middle tibia about as long as half length of hind spur; claws of front and middle tarsi pectinate, with six and five teeth, respectively (Fig. 3 D). Second tergite about four-fifths as long as wide, and equal to 3rd tergite in length. Third tergite with median and sublateral longitudinal carinae on basal $1/2-4/5$.

Black. Face, lower lateral corner of frons, clypeus, malar space and mouth parts yellow (Fig. 3 A). Apical teeth of mandible and clypeal foveae dark brown. Face often with a median dorsal spot and crescentic near each antennal socket brown (Fig. 3 A). Scape and pedicel on basal 0.7 black but the latter sometimes yellowish brown. Pedicel on apical $1/3$ and flagellum dark brown, darker dorsally. Tegula yellowish brown to dark brown. Front and middle legs yellowish brown to dark brown, the coxae except on apical half blackish brown, and sometimes middle femur except at both ends black. Hind leg dark brown to black:— coxa at apex, trochanters and femur at both ends yellowish brown and tarsus reddish brown. Wings hyaline; stigma and veins dark brown.

♂. Unknown.

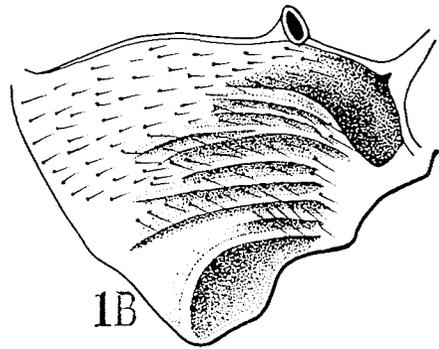
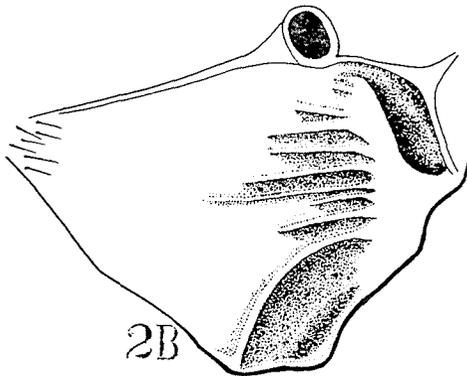
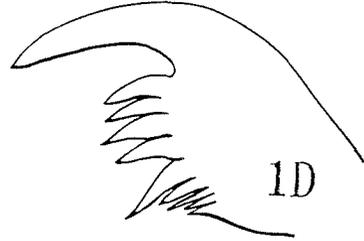
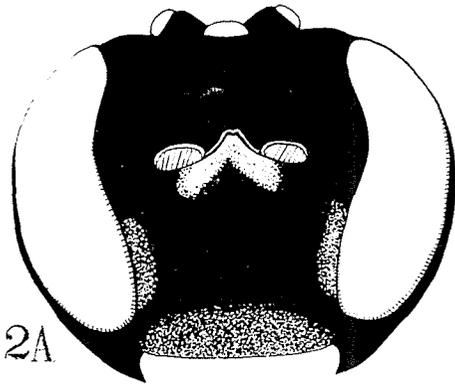
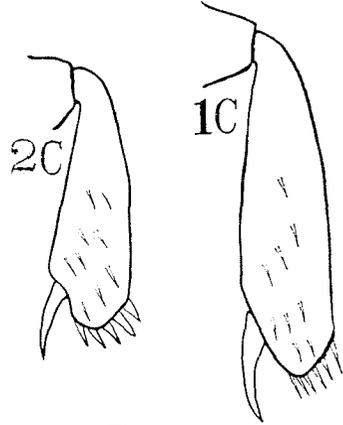
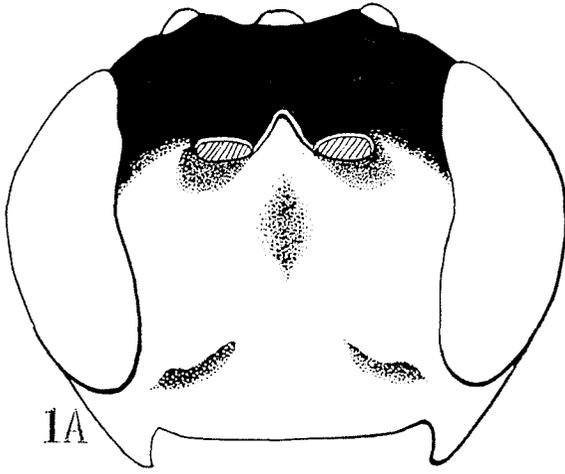
Holotype (♀): 15-vi-65, Shimamatsu, Hokkaido, K. Kusigemati leg. Paratypes: 1 ♀, 1-viii-58, Rebun Is., Hokkaido, S. Takagi leg.; 1 ♀, 17-vi-64, Sapporo, Hokkaido, H. Takada leg.; 1 ♀, 15-vi-65, Shimamatsu, Hokkaido, K. Kusigemati leg.

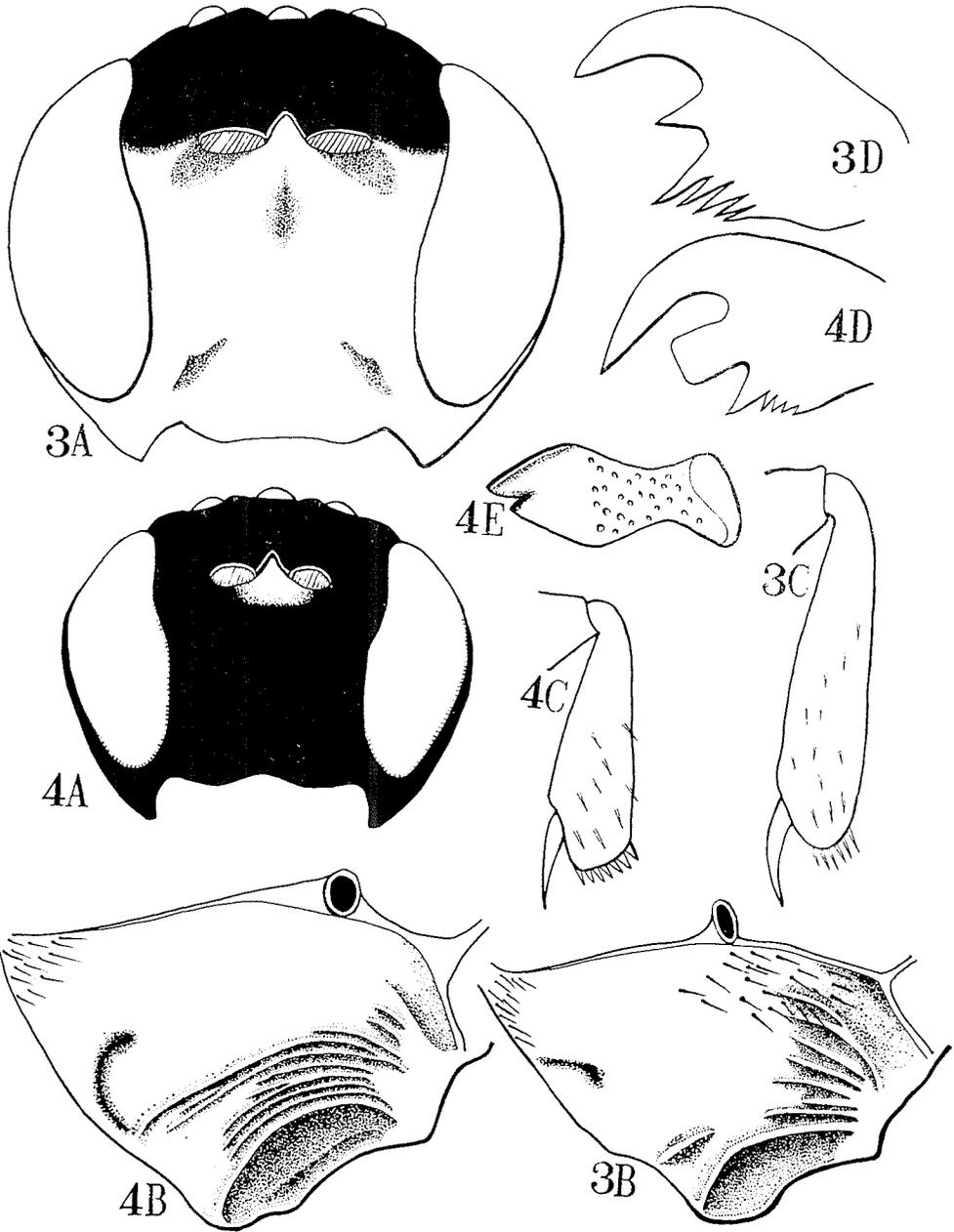
Distribution: Japan (Hokkaido).

This species belongs to the *texanus* group, and is similar to the Nearctic species *Trieces masoni* Townes, but it can be separated from the latter by the hairy eye, by the 3rd tergite with sublateral longitudinal carinae on basal $3/5$, and by the number of flagellar segments.

***Trieces nigrifaciatus*, sp. nov.**

♀. Face wider than high, finely and densely punctate. Face and clypeus strongly convex in profile. Apical margin of clypeus concave medially (Fig. 4 A). Malar space $1/2$ as long as basal width of mandible. Mandible with a weak subbasal constriction and a faint groove along upper apical edge, the upper tooth being as wide as and longer than the lower (Fig. 4 E). Distance between a lateral ocellus and an eye as long as diameter of an ocellus. Eye with very short, sparse hairs. Occipital carina present above and laterally. Temple strongly swollen, as long as width of eye, and densely





haired. Antennae filiform, with 22 or 23 segments; each segment, except last segment, about as long as wide. Propleurum moderately convex, finely punctate and densely haired. Mesonotum moderately strongly and densely punctate. Scutellum rather long and weakly convex, with scattered hairs but bare in centre. Dorsal end of prepectal carina ending at middle of front margin of mesopleurum. Sternaulus very short, shallowly impressed and extending to middle of mesopleurum. Mesopleurum with fine longitudinal wrinkles at lower hind corner, with dense hairs along the upper rim, elsewhere with sparse hairs. Metapleurum without a pit at hind end, with fine longitudinal wrinkles on posterior 4/5, without hairs except on the upper front corner (Fig. 4 B). Propodeal spiracle circular and situated behind middle (Fig. 4 B). Basal area of propodeum and areola shining and impunctate, with a few hairs. Nervulus postfulcal by 1/2 of its own length. Nervellus not broken. Legs stout; hind coxa rather densely haired; hind femur 2.0–2.2 times as long as depth, and a little shorter than hind tibia; front tibia with seven stout spines on dorso-apical margin (Fig. 4 C); front spur of middle tibia a little shorter than half length of hind spur; claws of front and middle tarsi pectinate, with six and five teeth, respectively (Fig. 4 D). Second tergite about as long as wide, and equal to 3rd tergite in length. Third tergite with median and sub-lateral longitudinal carinae on about basal half.

Black. Interantennal process and palpi pale yellow (Fig. 4 A). Mandible ferruginous except for apical black tooth. Scape, and pedicel except on basal 2/5 black. Flagellum reddish brown, darker dorsally. Tegula and subtegular ridge blackish brown. Legs brown to dark brown; all coxae except at apex, middle and hind femora except at both ends black. Wings hyaline; stigma and veins dark brown.

♂. Unknown.

Length; body ca. 5.5 mm., forewing 3.5–4.2 mm.

Holotype (♀): 9-vi-65, Sapporo, Hokkaido, K. Kusigemati leg. Paratypes: 3 ♀, 17-vi-66, Tōma, Asahigawa, Hokkaido, K. Kamiyo leg.; 1 ♀, 19-vi-66, Aizankei, Hokkaido, K. Kusigemati leg.

Distribution: Japan (Hokkaido).

This species belongs to the *integer* group, and is closely related to the Nearctic species *Trieces aquialis* Townes, but readily distinguished from the latter by the face and clypeus strongly convex, by the eye with very short, sparse hairs and by the mandible black with the apical half ferruginous.

Explanation of plates

Plate XXVII. Fig. 1, *Trieces homonae*, sp. nov.; 2, *Trieces hokkaidensis*, sp. nov.

A, head in front view; B, metapleurum; C, front tibia; D, front tarsal claw.

Plate XXVIII. Fig. 3, *Trieces flavifaciatus*, sp. nov.; 4, *Trieces nigrifaciatus*, sp.

nov. A, head in front view; B, metapleurum; C, front tibia; D, front tarsal claw; E, mandible.

Errata

Vol. 29, No. 2, p. 43, line 6 from top, for "Kuroda" read "Kodama".

Vol. 29, No. 2, p. 43, line 2 and 4 from bottom; p. 44, line 1 and 3 from top, for "*Parana*" read "*Parnara*".

Vol. 29, No. 2, p. 43, line 2 from bottom; p. 44, line 1, 2 and 5, for "*paranae*" read "*parnae*".

Vol. 29, No. 2, p. 46, line 17 from top; p. 47, line 19 from top; p. 48, line 13 from top; and p. 49, line 11 from top, for "postfulcal" read "postfurcal".

Vol. 29, No. 2, p. 48, between lines 17 and 18 from bottom add "Length; body 6-7 mm.; forewing 4.5 mm."

Vol. 29, No. 2, p. 50, line 15 from bottom, for "Japaan" read "Japan".

Vol. 29, No. 2, p. 51, line 18 from bottom, insert a comma between "*Hydrophorus*" and "*Thinophilus*".