ADDITIONS TO THE HYMENOPTEROUS FAUNA OF THE ISHIGAKI ISLAND

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ONE PLATE AND SIX TEXT-FIGURES

(Received Sept. 5, 1933)

The materials discussed in this paper were collected by Prof. Hiroshi Ohshima and Mr. Hayato Ikeda of the Kyushu Imperial University, Mr. Akira Umeno of Kurume and Messrs. Tsutomu Masaki and Naganori Senaha of the Ishigaki Island. All the specimens, except those belonging to the property of Mr. Umeno, are preserved in the Entomological Laboratory, Department of Agriculture, Kyushu Imperial University, Fukuoka. Among the specimens collected by these gentlemen are found some species which are apparently new to the fauna of the Ishigaki Island of the Ryukyu group or even new to science. I give, therefore, hereby a report on them together with notes on the known species as well as descriptions of two new species.

I express my hearty thanks to Prof. Teiso Esaki of the Kyushu Imperial University for his kind guidance. My hearty thanks are also due to Prof. H. Ohshima, Messrs. H. Ikeda, A. Umeno, T. Masaki and N. Senaha who were so kind enough as to collect specimens from that Island and enabled me to undertake the present study.

FAMILY EVANIIDAE

1. *Evania appendigaster* (Linné)

Ichneumon appendigaster Linné, Syst. nat. Ed. 10a I, p. 566, 1758.

1♀, 3. vi. 1932, collected by Mr. Umeno.

2♀♀, 10. vii. 1933, collected by Mr. Senaha.

This is the first definite record of this cosmopolitan species from the Ishigaki Island.

FAMILY ICHNEUMONIDAE

2. *Paniscus orientalis* Cameron

Paniscus orientalis Cameron, Spolia Zeylanica p. 126, 1905.

Paniscus orientalis Morley, Fauna Brit. India, Hym. iii, p. 355, 1913.
Paniscus orientalis Morley, Rev. Ichneum., ii, p. 122, 1913.
Paniscus orientalis Matsumura et Uchida, Ins. Mats. vol. 1, no. 2, p. 74, 1926.
Paniscus orientalis Uchida, Journ. Fac. Agr. Hokkaido Imp. Univ. vol. 21, pt. 2, p. 192, 1928.
1♀, 28. v. 1933, collected by Mr. Senaha.
The species is new to the fauna of the Ishigaki Island.

FAMILY EUMENIDAE

3. *Ancistrocerus ishigakiensis* n. sp.

♀. Head circular seen in front. Clypeus slightly longer than wide, with the base circular, the sides almost straight and convergent towards the apex, the apical margin broadly truncate, but slightly sinuate, the angle of edge about 90°, moderately convex, the central larger portion comparatively flat and gently sloping from base to apex seen in profile. Front with a low and short carina between the bases of antennæ which extends from lower apex of front as far as anterior ocellus, being nearly of the length of second flagellum of antennæ. Vertex with two consecutive, depressed, slightly excavated areas. Front convex below anterior ocellus. Temples well developed in the upper part, where they are narrower than an eye in profile, gradually narrowed below, margined by a sharp rim which is continued uninterruptedly behind vertex. Ocelli arranged in a flattened triangle, the posterior ones about as far from each other as from the inner orbits. Mandibles comparatively long and broad, inner anterior margin with four notches, the outer surface with five longitudinal carinæ: one each along the inner anterior margin, along the posterior margin, from base to the first notch (most apically situated one), from base to apex running longitudinally along the median line of the outer surface of mandible and from base to the middle of the preceding carina. Thorax seen above about twice as long as its greatest width. Pronotum

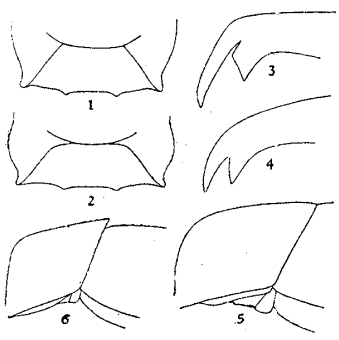

Fig.1.—Propodeum of *Rhynchium umenoi* n. sp., in dorsal aspect. Fig. 2.—Propodeum of *Rhynchium japonicum* in dorsal aspect. Fig. 3.—Claw of *Rhynchium umenoi*. Fig. 4.—Claw of *Ancistrocerus ishigakiensis* n. sp. Fig. 5.—First abdominal tergite of *Rhynchium japonicum* in profile. Fig. 6.—First abdominal tergite of *Rhynchium umenoi* in profile.

with a continuous dull carina between the anterior and posterior slopes, the carina is almost straight in dorsal aspect, but slightly sinuated towards mesonotum, strongly rimmed on the sides, the sides gently curved. A feeble, median, longitudinal furrow from the anterior margin to the centre of mesonotum, parapsidal furrows indistinctly recognizable, scutellum with a median longitudinal furrow. Propodeum with the horizontal area, which is slightly shorter than that of postscutellum, slightly excavated; the concavity completely enclosed by a sharp rim, the lateral angles distinct and comparatively acute both in dorsal and lateral aspects, there are two consecutive, anteriorly convergent, feeble carinæ inside the concavity, the upper ends of the carinæ reaching the superior rim. Claws of fore and mid-legs bifid, those of hind legs without teeth. Wing venation as figured in the plate. Abdomen with the first tergite somewhat cylindrical, the sides are almost straight and moderately convergent towards the thorax, with a transverse and continuous carina between the anterior and posterior slopes, horizontal area wider than long in dorsal aspect. Second tergite longer than wide. The apical margin of the first and second tergites very slightly raised. Second sternite with the lateral portion low and convex and with a uniformly flattened semicircular area near the base. Apex of the sixth sternite truncate, postero-lateral angles rounded, apical margin slightly emarginated in the middle of the truncation.

Punctuation on head and thorax very strong and dense. Front, vertex, mesonotum, sides of thorax and propodeum somewhat rugose. Clypeus slightly and remotely punctured. Anterior slope of pronotum without punctures and shining. Concavity of propodeum feeble, transversely and obliquely striated to some extent. Posterior surface of coxæ very shining. All tergites minutely punctured. Second sternite with distinct but more remotely scattered punctures, with a single transverse furrow (which is feebly crenelated) near the base. The entire surface of the body with a very short fuscous pubescence. Abdomen covered with somewhat velvety bloom, giving it a rather dull appearance.

Head and thorax black, with the following portions and markings orange-yellow: almost entire clypeus (narrow anterior margin brown); carina between insertions of antennæ; inner orbits; temples; an elongate spot below the anterior ocellus; somewhat V-shaped marking below the preceding spot; mandibles except apex and antero-interior margin; scapes; pedicels; basal half of the first segment of flagellum (somewhat ferruginous); (underside of flagellum slightly ferruginous

black); pronotum except the anterior slope and the portions along the lateral margins; the portion before the humeral angles; two distinct longitudinal lines (which are slightly divergent towards pronotum) on mesonotum; tegulæ except a median brown spot; scutellum except the black, median, longitudinal line; postscutellum; a large spot on mesopleura; a small spot just below it; apical half or more of coxæ except the posterior surface; femora, tibiæ, tarsi and claws (outer and inner sides of hind femora brownish, pulvilli brownish black). Abdomen orange-yellow. Anterior half of the first tergite, a Ⅱ-shaped marking on the second tergite, first and second sternites (except the apices) ferruginous black. First sternite with narrow lateral margins ferruginous. Base of the first sternite also ferruginous. Two transverse spots and a longitudinal line between them as well as transverse small lines near the apical margin of the first tergite brown. Posterior margin of each abdominal segment above and below and the entire surface of the fifth and sixth tergites brown. Third, fourth, fifth and sixth sternites each with the posterior margin brownish black. Wings somewhat fuscous, with costal, basal and subbasal cells of fore wings and costal cells of hind ones pale orange-yellow, stigmas orange-yellow. Outer margins of fore wings and inner margin near the base of hind wings somewhat clearer though infuscated. Nervures brown, subcostal, median and basal nervures brownish black.

Length of head and thorax put together: 7.4 mm., first and second tergites put together: 5.2 mm., fore wing: 11.5 mm., hind wing: 7.9 mm.

Width of head: 3.6 mm., thorax: 3.6 mm., first abdominal tergite at apex: 3.0 mm., second tergite at middle: 3.8 mm.

Relative length of the segments of antennæ: I : II : III : IV : V = 35 : 6 : 12 : 10 : 9.

Holotype-1 ♀, 5. vi. 1932, Ishigaki Island, collected by Mr. Umeno, in the collection of Mr. Umeno.

This species is different in coloration from all of the known species of the genus described from the adjacent region.

4. *Rhynchium umenoi* n. sp.

♀. Head subcircular seen in front. Clypeus nearly pyriform, somewhat hexagonal in outline, longer than wide, with the apex narrow and truncate, slightly emarginate at apex (the apex seems apparently deeply emarginated owing to the yellowish marking), moderately convex. Vertex with a transverse, curved, slightly excavated area, covered with dense hairs. Temples well developed in the upper and

middle parts, where they are about one half as wide as an eye in profile, gradually narrowed below, margined by a rim which runs uninterruptedly behind vertex where it is almost in contact with the posterior margin of the excavated area. Ocelli put in a flattened triangle, postocellar line much longer than ocello-ocular line. A short, distinct carina is present between insertions of antennæ. A more or less inverted-triangle shaped, yellowish portion slightly raised just above the carina mentioned above. Mandibles with three notches at the antero-interior margin, with the apex blunt but not sharp, not curved, armed with five carinæ as in the preceding species. Thorax seen from above about twice as long as the width at the posterior margin of propodeum. The ridge between the vertical and very short horizontal areas of the pronotum very sharply carinated. Mesonotum with a median, longitudinal carina about one half the length of the anterior surface of pronotum, parapsidal furrows very feebly defined on the postero-lateral portions of mesonotum, scutellum with a shallow, longitudinal furrow, the posterior margin slightly crenelated, posterior half of postscutellum almost vertical. Propodeum without a horizontal area, concavity with two large, closely situated carinæ along the median line (which are convergent towards the apex), concavity sharply rimmed by a carina and separated from the sides distinctly, the postero-lateral angles acutely produced somewhat postero-laterally. Claws of legs bifid of which the inner tooth stout and truncate at apex. First abdominal tergite as in *Rhynchium japonicum*, but the anterior slope more slightly curved in profile. The depressed basal portion of the second tergite loosely covered by the posterior margin of the preceding tergite.

Head and thorax with very strong and dense punctures. Anterior slope of pronotum without punctures and shining. Concavity on propodeum striated transversely and obliquely, but feebly. Underside of all femora punctured or scraped minutely and transversely (somewhat obliquely). First and second tergites punctured comparatively minutely. Posterior margin of the third, fourth and fifth tergites punctured more strongly and coarsely. Second, third, fourth and fifth sternites punctured, strongly and moderately, with the narrow posterior margin impunctate. Base of the first sternite (portion of articulation) distinctly striated transversely, the rest of the sternite densely punctured or transversely rugose in certain aspect. Posterior margin of the first sternite and the anterior margin of the second impunctate and shining. Base of the second sternite (just before the transverse furrow) densely

striated longitudinally. Pubescence as in *Rhynchium japonicum*, but the first and second tergites covered with a somewhat velvety black bloom, giving them a rather duller appearance than the *Rhynchium japonicum*.

Black, with the following portions and markings orange-yellow: clypeus except the brown apex (apex deeply emarginated); a triangular small spot at the base of frons; inverted-triangle shaped large markings above it; inner eye-incision (lower orbit only); temples except the posterior margin; entire scape of antennæ; pedicel (somewhat ferruginous) (underside of flagellum ferruginous black); pronotum and mesopleura as in *Rhynchium japonicum*; tergulæ; a short line behind them; a broad fascia on scutellum (interrupted medially); a fascia on postscutellum; a spot near the apex on the posterior surface of fore femora; a fascia on the posterior margin of the first to fifth tergites of which the one on the second tergite with the anterior border not distinctly defined and vaguely reduced to black; sixth tergite except the basal, lateral and apical ferruginous portion; a narrow fascia on the posterior margin of the second to fifth sternites. Sixth sternite entirely ferruginous with the apex black. Mandibles with the apex black, base and margin ferruginous. Maxillary and labial palpi also ferruginous. Legs almost ferruginous except the piceo-ferruginous basal portion of coxæ. Apex of tibiæ and tarsal segments somewhat blackish. Pulvilli blackish brown. Wings as in *Rhynchium japonicum*.

Length of head and thorax put together: 9.5 mm., first and second tergites put together: 7.5 mm., fore wing: 16.0 mm., hind wing: 11.0 mm.

Width of head: 4.6 mm., thorax: 5.5 mm., first abdominal tergite: 5.0 mm., second tergite: 5.7 mm.

Relative length of the segments of antennæ: I : II : III : IV : V = 43 : 8 : 20 : 12 : 12.

Holotype-1 ♀, 2. vi. 1932, Ishigaki Island, collected by Mr. Umeno, in the collection of Mr. Umeno.

This species is structurally very close to *Rhynchium japonicum* Dalla Torre, 1893 and in coloration to *Rhynchium flavolineatum* Smith, 1857.

1. In *R. japonicum* there is a narrow black strip on each side of clypeus, no yellow marking is present between insertions of antennæ just above the base of clypeus, scape yellow only in front, inner orbits entirely black, temples with only a small, short yellow line, only first and second tergites with an orange-yellow fascia.

2. In *R. japonicum* the notches in mandibles are deeper than in *R. umenoi.*

3. In *R. japonicum* the sides of propodeum in dorsal aspect are slightly produced outwardly, while in *R. umenoi* the sides are not so conspicuously produced as in the former but are gently curved.

4. In *R. japonicum* punctuation on head and thorax is less strong than in *R. umenoi.*

5. Curvature of the first tergite seen in profile is different in *R. japonicum* and *umenoi.*

6. In *R. flavolineatum* the scape is yellow only in front, while in *R. umenoi* it is entirely orange-yellow. In *R. flavolineatum*a large subovate spot is present on the sides of propodeum, while in *R. umenoi* it is obsolete.

7. In *R. flavolineatum* the claws are bifid of which the inner tooth is sharp and as large as, or slightly smaller than, the outer one, while in *R. umenoi* the inner one is stouter and its apex is truncate.

FAMILY PSAMMOCHARIDAE

5. *Cyphononyx nicevillii* (Bingham)

Salius nicevillii Bingham, Journ. Bombay Nat. Hist. Soc. p. 199, 1896.

Pompilus okinawensis Matsumura, Thous. Ins. Japan, Suppl. vol. 3, p. 133, 1911.

Pompilus okinawensis Matsumura, 6000 Illustr. Ins. Japan-Empire p. 23, 1931.

Cryptochilus nicevillii Matsumura, Illustr. Common Ins. Japan vol. 4, p. 10 et 15, 1932.

Cyphononyx nicevillii Yano, Icon. Ins. Japon. p. 290, 1932.

Cyphononyx okinawensis Yano, Icon. Ins. Japon. p. 290, 1932.

Cryptochilus nicevillii Uchida, Nippon Gakujutsu Kyôkai Hôkoku (Rept. Japan. Assoc. Adv. Sci.) vol. 7, no. 2, p. 142, 1932.

3♀ ♀, vii. 1933, collected by Prof. Ohshima and Mr. Ikeda.

This is the first definite record of this Psammocharid from the Ishigaki Island.

FAMILY TRYPOXYLONIDAE

6. *Pison fabricator* Smith

Pison fabricator Smith, Trans. Ent. Soc. London p. 297, 1869.

Pison fabricator Strand, Arch. Nat. Berlin, A, H. 7, p. 164, 1913.

Pison suspiciosum Sonan (nec Smith), Zool. Mag. Tokyo, vol. 37, no. 440, p. 238, 1925.
Pison fabricator Sonan, Trans. Nat. Hist. Soc. Formosa vol. 17, no. 89, p. 136, 1927.
Pison fabricator Yano, Icon. Ins. Japon. p. 280, 1932.
1♀, 28. v. 1933, collected by Mr. Senaha.
The species is new to the fauna of the Ishigaki Island.

FAMILY MEGACHILIDAE

7. *Megachile igniscopata* Cockerell
Megachile igniscopata Cockerell, Ann. Mag. Nat. Hist. s. 8, vol. 7, no. 41, p. 486, 1911.
Megachile igniscopata Strand, Suppl. ent. 2, p. 56, 1913.
Megachile remtoa Alfken (nec Smith), Konowia 3, p. 11, 1924.
Megachile igniscopata Hedicke, Deutsch. Ent. Zeitschr. p. 363, 1925.
1♀, 24. vi. 1933, collected by Mr. Senaha.
1♀, 22. vii. 1933, collected by Mr. Senaha.
The species is new to the fauna of the Ishigaki Island.

FAMILY XYLOCOPIDAE

8. *Xylocopa albinotum* Matsumura
Xylocopa albinotum Matsumura, Ins. Mats. vol. 1, no. 2, p. 66, 1926.
Xylocopa albinotum Matsumura, 6000 Illustr. Ins. Japan-Empire p. 9, 1931.
Xylocopa albinotum Matsumura, Illustr. Common Ins. Japan vol. 4, p. 5, 7, 1932.
1♀, v. 1933, collected by Mr. Masaki.
1♀, 4. vi. 1932, collected by Mr. Umeno.
2♀♀, vii. 1933, collected by Prof. Ohshima and Mr. Ikeda.
2♀♀, 16 vii. 1933, collected by Mr. Senaha.

Very closely allied to *Xylocopa verticalis* Lepeletier[1] from India, but may be separable from it from the following reasons:

1. In *X. verticalis* the wings are subhyaline at base, while in *albinotum* they are entirely fuscous.

2. In *X. verticalis* the basal abdominal segment is covered with a dense yellow pubescence having a soft velvety appearance, while in *albinotum* it is only sparsely covered with pubescence.

[1] Lepeletier, Hist. nat. Insect. Hymén. ii, p. 195, 1841.

3. In *X. verticalis* the legs are covered with a sooty-brown pubescence, which turns into ferruginous on the inside of all tarsi, while in *albinotum* fore tarsi are covered with a dark reddish brown, handsome pubescence.

This species is also related to *Xylocopa aestuans* (Linné)[2] from India, Burma, Ceylon, West Africa and Eastern Maley Region, but may be easily distinguished from it by the following characters:

1. In *X. aestuans* the thorax is covered with a yellowish pubescence dorsally which does not extend beneath the insertion of the wings, *in albinotum*, on the contrary, it extends far beyond the insertion of the wings and the pubescence is greyish yellow.

2. In *X. aestuans* the wings are with a bright, purple iridescence at the basal portion and are greyish at the rest. In *albinotum* the wings are entirely decorated with a purple effulgance.

3. In *X. aestuans* the occiput is without a greyish pubescence, while in *albinotum* it bears a comparatively dense greyish pubescence.

FAMILY NOMADIDAE

9. *Crocisa histrio* (Fabricius)

Nomada histrio Fabricius, Syst. entom. p. 388, 1775.
Nomada histrio Fabricius, Spec. Insect. I, p. 487, 1781.
Nomada histrio Fabricius, Mant. Insect. I, p. 306, 1787.
Nomada histrio Römer, Gen. Insect. p. 61, 1789.
Apis (*Nomada*) *histrio* Gmelin, Linné: Syst. nat. Ed. 13a I, p. 2795, 1790.
Apis histrio Christ, Naturg. d. Insect. p. 137, 1791.
Nomada histrio Fabricius, Entom, system, ii, p. 345, 1793.
Melecta histrio Latreille, Hist. nat. Fourmis, p. 427, 1802.
Melecta histrio Walckenar, Fauna Paris v, p. 120, 1802.
Melecta histrio Fabricius, Syst. Piez. p. 385, 1804.
Melecta histrio Illiger, Magaz. f. Insectenk. v, p. 100, 1806.
Crocisa histrio Jurine, Nouv. méth. class. Hymén. p. 241, 1807.
Melecta histrio Klug, Magaz. f. Insectenk. vi, p. 227, 1807.
Crocisa histrio Latreille, Gen. Crust. & Insect. iv, p. 172, 1809.
Melecta (*Crocisa*) *histrio* Lepeletier, Encycl. méthod. Insect. x, p. 106, 1825.
Crocisa histrio Blanchard, Hist. nat. Insect. iii, p. 411, 1840.
Crocisa histrio Lepeletier, Hist. nat. Insect. Hymén. ii, p. 454, 1841.

[2] Linné, Syst. nat. Ed. 10a I, p. 579, 1758.

Crocisa histrio Smith, Trans. Entom. Soc. London p. 204, 1873.
Crocisa histrio Smith, Scient. Res. 2nd Yarkand Miss. p. 5, 1878.
Crocisa histrio Radoszkowski, Bull. soc. natural. Moscou p. 170, 1893.
Crocisa histrio Dalla Torre, Cat. Hymen. x, p. 320, 1896.
Crocisa histrio Bingham, Fauna Brit. India, Hymen. i, p. 518, 1897.
Crocisa histrio Friese, Zeitschr. syst. Hymenopt. u. Dipt. v, p. 2, 9, 11, 1905.
Crocisa histrio Matsumura, Cat. use. Ins. Japan p. 146, 1908.
Crocisa histrio Kuroiwa, Prov. List Hym. in Loochoo, p. 7, 1908.
Crocisa histrio Matsumura, Thous. Ins. Japan, Suppl., 4, p. 9, 1912.
Crocisa scutellaris Matsumura et Uchida, Ins. Mats. vol. 1, no. 2, p. 65, 1926.
Crocisa scutellaris Matsumura, 6000 Illustr. Ins. Japan-Empire p. 6, 1931.
Crocisa scutellaris Matsumura, Illustr. Common Ins. Japan vol. 4, p. 6 et 9, 1932.
1♀, 25. vi. 1933, collected by Mr. Senaha.
The species is new to the fauna of the Ishigaki Island.

FAMILY ANTHOPHORIDAE

10. *Anthophorau rens* Cockerell
Anthophora urens Cockerell, Entom. vol. 44, p. 341, 1911.
Anthophora urens Cockerell, Pan-Pacific Entom. vol. 3, no. 2, p. 87, 1926.
Anthophor aurens Cockerell, Ann. Mag. Nat. Hist. s. 10, vol. 7, no. 37, p. 39, 1931.
1♀, 1. vi. 1933, collected by Mr. Senaha.
The species was described from Formosa and so far reported also from the Ishigaki Island and Siam.

PLATE

EXPLANATION OF PLATE 14

1. *Ancistrocerus ishigakiensis* n. sp.
2. Head of *Ancistrocerus ishigakiensis* in facial aspect.
3. Head of *Rhynchium umenoi* n. sp. in facial aspect.
4. Anterior margin of clypeus of *Xylocopa albinotum* Matsumura.
5. Mandible of *Xylocopa albinotum* in antero-lateral aspect.

HYMENOPTEROUS FAUNA OF ISHIGAKI ISLAND

KEIZO YASUMATSU

PLATE 14