

ON SOME HYMENOPTEROUS INSECTS FROM THE ISLAND OF FORMOSA.

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The following is a list of the Tenthredinoidea, the Vespoidea, and the Sphecoidea belonging to a collection made by Mr. T. Fukai of Konosu, Saitama, Japan, and sent to the United States National Museum. The species were all collected at Horisha, Formosa, between April 20 and May 15, 1909. With the exception of the tenthredinoid genus *Athlophorus* Burmeister all of the genera are cosmopolitan.

Superfamily TENTHREDINOIDEA Ashmead.

Family TENTHREDINIDÆ.

ATHLOPHORUS FORMOSACOLA, new species.

Apparently nearest to *Athlophorus scurrilis* (Konow), but differs from that species in a number of ways.

Male.—Length 9 mm. Anterior margin of the labrum rounded; anterior margin of the clypeus arcuately emarginate, the angles acute; front with close, distinct punctures; vertex and posterior orbits shining, hardly punctured; middle fovea very shallow; ocellar basin very small, enclosing the ocellus above but not below; postocellar furrow wanting; postocellar area sharply defined laterally, the cephal-caudal length about half as long again as the width; ocelli in an equilateral triangle; antennæ thickened near the middle, the apical four joints ridged beneath; dorsulum with distinct, separate punctures; scutellum elevated in the middle into a strong sharp ridge; legs and venation normal; stigma slightly broadened apically; hypopygidium rounded at the apex; genitalia stipes rounded apically, broader basally. Black; labrum, clypeus, mandibles (except the piceous apices), scape, a narrow line surrounding the orbit (slightly interrupted above), line on posterior margin of pronotum, spot on propleuræ, two lines above the intermediate coxæ, narrow line on dorsal segments two and four, apical segments above and below,

and first two ventral segments white or yellowish-white; legs white or slightly yellowish, most of the posterior coxæ and the posterior femora above black. Wings dusky hyaline, darker in the radial cell, iridescent; venation dark brown, except the lower part of the stigma, which is yellowish.

Type-locality.—Horisha, Formosa. One male collected by Mr. T. Fukai.

Type.—Cat. no. 13372, U.S.N.M.

In the elevated scutellum this species differs from the genotype (*Athlophorus klugii* Burmeister), but there are no other differences of importance which can be found from the elaborate description of Burmeister. There is, however, a tendency to the elevation of the scutellum in some Nearctic *Strongylogasteroidæ* Ashmead.

Superfamily VESPOIDEA Ashmead.

Family CHRYSIDIDÆ.

CHRYSIS (*Chrysis*) FUKAI, new species.

Belongs near *Chrysis* (*Chrysis*) *principalis* (Smith), but the first joint of the flagellum is nearly as long as the two following (not but little longer than the second), the transverse facial carina is almost wanting (not distinctly present), the facial basin is sculptured as coarsely as the rest of the front, and the notauli are nearly parallel throughout and the anterior part between them is sculptured like the rest (not strongly diverging). The above comparison was made with specimens from Burmah. *Chrysis* (*Chrysis*) *schödtei* Dahlbom has the metanotum (postscutellum of authors) different, and teeth of the apical margin of the third abdominal segment are different.

Female.—Length 9 mm. Clypeus nearly truncate at the apex; malar space slightly less than the length of the pedicellum; facial basin sculptured similar to the rest of the head but more finely so; orbital carina strong, anterior ocellus distinctly hooded posteriorly; postocellar line slightly longer than the ocellocular line, but slightly shorter than the ocelloccipital line; third antennal joint nearly as long as the fourth and fifth combined; head and thorax with large, close, and in a few places confluent, punctures; pronotum about as long as the scutellum, distinctly shorter than the mesonotum, depressed in the anterior middle; notauli distinct and nearly parallel; metanotum convex, not depressed and separated from the propodeum by broad oblique furrows; first dorsal segment with large close punctures basally, fine scattered ones apically; second and third segments with distinct widely separate punctures, those on the second more widely separate than those on the first; lateral margin of the third segment nearly straight, the depressed apical groove with twelve well-defined pits; apical margins with six teeth, the distance

between the two middle ones somewhat less than the distance between the second and third. Bright metallic green with a few blue spots on head, thorax, and the basal segments; most of the flagellum and tarsi black. Wings dusky hyaline, venation dark brown. Almost without white hair.

Type-locality.—Horisha, Formosa. One female collected by Mr. T. Fukai, in whose honor the insect is named.

Type.—Cat. no. 13373, U.S.N.M.

CHRYSIS (Tetrachrysis) LUSCA (Fabricius).

One female of this species was collected by Mr. T. Fukai. It is a widely distributed species within the oriental region.

Family VESPIDÆ.

POLISTES STIGMA (Fabricius).

Represented by one small worker.

POLISTES HEBRÆUS (Fabricius).

Three workers of a pale variety.

POLISTES (Gyrostoma) SCHACH (Fabricius).

Both females and workers were collected.

VESPA DUCALIS Smith.

A single female of this species, which occurs both in India and China.

VESPA MANDARINIA Smith.

A female and worker of this large species, which is very common in Japan, occurring in China also.

Family EUMENIDÆ.

RHYGCHIUM FLAVOLINEATUM (Smith), variety.

Two females, which may represent a distinct species, were collected. They agree with the variety given by Bingham in the Fauna of British India, except that the pale spot at the emargination of the eyes is wanting.

RHYGCHIUM BRUNNEUM (Fabricius).

Males and a female were collected.

RHYGCHIUM METALLICUM Saussure.

Two males and a female are assigned to this species with some doubt. The clypeus of the male is entirely black. This is one of the border-line species between *Rhygchium* and *Odynerus*. The apical three joints of the maxillary palpi are distinctly longer than the third joint.

CAMPSOMERIS (*Campsomeris*) ALBOPILOSA, new species.

A distinct species which seems to be related to *Campsomeris* (*Campsomeris*) *grossa* (Fabricius) as defined by Col. L. T. Bingham in *The Hymenoptera of British India*.

Male.—Length a little over 12 mm.; length of antennæ 6 mm. Labrum rounded at the sides, very slightly arcuate on the anterior margin, the surface dull with fine scratches; clypeus with a narrow transverse furrow at the apex, the surface shining and impunctate except for the setigerous punctures; space between the eyes at the clypeus distinctly greater than the length of the scape and pedicellum; interocellar area parted by an indistinct furrow; postocellar line subequal with the ocellocular line; front with large punctures, in a few places confluent; vertex and occiput with widely scattered punctures; third and fourth antennal joints equal, apical joint longer than the preceding and sharply, obliquely truncate at the apex; mesothorax and scutellum shining, with scattered setigerous punctures; propodeum rather sharply truncate posteriorly, with setigerous punctures as on the mesonotum; inner spur of anterior tibiæ dilated at the apex, truncate; inner spur of posterior tibiæ more than half the length of the basitarsis; legs with numerous, weak spines; distance between the recurrent nervures subequal with the length of the second cubital on the radius; pygidium rather poorly margined, dulled. Black; clypeus except a large middle spot, pronotum broadly, two confluent spots on the scutellum, large spot on the metanotum (postscutellum of authors), line on femora beneath, a line on the four anterior tibiæ, and a band on first dorsal segments (broader on the first three, and dentate medianly on segments two and three) pale yellow; entire insect with long pale hair; wings dusky hyaline, slightly yellowish basally; venation dark brown.

Type-locality.—Horisha, Formosa. One male collected by Mr. T. Fukai.

Type.—Cat. no. 13374, U.S.N.M.

Family PSAMMOCHARIDÆ.

PALLOSOMA FULVOGNATHUS, new species.

Posterior part of thorax and abdomen black; head marked with fulvous; wings reddish-yellow; antennæ as long as body.

Male.—Length 15.5 mm.; length of antennæ 16 mm. Mandibles with an inner apical tooth; labrum hardly exerted, anterior margin rounded; clypeus rather large, lateral angles rounded; antennæ inserted above the clypeus; inner eye margins slightly converging to the clypeus, the upper part emarginate; ocelli in a low triangle, the lateral ones on the supraorbital line; postocellar line shorter than the

ocelloccipital or ocellocular line; occiput not emarginate, slightly margined; scape not especially large, cylindrical; pedicel longer than wide, constricted in the middle; flagellar joints very long and the apical ones gently arcuate, first slightly longer than second, apical one subequal with the preceding; pronotum with a broad cephal-caudad depression, arcuate posteriorly hardly half as long as the mesonotum; scutellum prominent, longer than wide; metanotum (postscutellum of authors) tuberculate in the middle; propodeum with transverse wrinkles, the spiricals narrow elongate, oblique, no longitudinal furrow, truncate posteriorly and the lower lateral angles when seen from the sides dentate; legs long, feebly spined, claws with a very long basal tooth; abdomen about the same length as the thorax, subcompressed, second dorsal segment longer than wide, apical segment with long hairs; submedian cell of the anterior wing distinctly longer than the median; cubital cells large, the third shorter on the radius than the second, and but little longer than the distance from the second transverse cubitus to the second recurrent nervure; submedian cell of the posterior wings distinctly shorter than the median. Black with a purple tinge to the abdomen; mandibles (apices piceous), clypeus, orbits (slightly interrupted above and nearly meeting on the occiput), pronotum, tegulae, and legs below middle of femora reddish-yellow; seven basal joints of the antennae reddish-yellow, the apical joints brown; mesonotum, pronotum, and head somewhat with reddish-yellow pile. Wings reddish-yellow, covered with hairs, the apical margin dusky and without hairs; venation reddish-yellow.

Paratype is slightly smaller and has the submedian cell of the hind wings subequal with the median.

Type-locality.—Horisha, Formosa (T. Fukai).

Type.—Cat. no. 13375, U.S.N.M.

PSAMMOCHARES (*Entypus*) FORMOSENSIS, new species.

In Colonel Bingham's table to the species of *Pompilus* of British India this species runs near to *ariadne* Cameron and *limbatus* Smith, but does not agree with the description of either. Entirely black with silvery bands on the abdomen; wings strongly dusky.

Male.—Length 12 mm. Labrum distinctly exerted, the exerted part about as long as the width of the mandibles at the base; clypeus very gently arcuate; a fine impressed line from the anterior ocellus to base of antennae; head, clypeus, labrum, and base of mandibles gently, irregularly scratched; postocellar line fully twice as long as the ocellocular line, and nearly twice as long as the ocelloccipital line; pedicel longer than wide, very indistinctly separated from the first joint of the flagellum; first joint of the flagellum slightly shorter than

the second, apical joint shorter than the preceding; emargination of the pronotum strongly arcuate; scutellum narrowed posteriorly, the cephal-caudad length distinctly greater than the width; propodeum obliquely truncate posteriorly, the spiricals elongate, arcuate; thorax dull, impunctate; venation and legs very like the genotype of *Entypus* (*Entypus ochraceus* Dahlbom), legs perhaps more strongly spined, inner claw tooth large, robust, obliquely truncate at the apex; abdomen dull, finely scratched. Entirely black; coxæ, and basal part of all the dorsal segments with silvery pile; wings strongly dusky, the apex and area basad of stigma darker; venation dark brown.

Type-locality.—Horisha, Formosa. One male collected by Mr. T. Fukai.

Type.—Cat. no. 13376, U.S.N.M.

Superfamily SPHECOIDEA Ashmead.

Family SPHECIDÆ.

PROTEROSPHEX NIGRIPES (Smith), variety.

Apparently a large specimen of variety *erythropoda* Cameron, being 22 mm. long. One male.

SCELIPHON MADRASPATANUS (Fabricius).

One male.

Family PHILANTHIDÆ.

CERCERIS FUKAI, new species.

Perhaps closest to *Cerceris pentadonta* Cameron, but is much more coarsely sculptured than that species and hardly belongs to the same group. A yellow band on the third and sixth segments; femora black; tegulæ reddish yellow; with large, sometimes confluent, punctures.

Male.—Length 8.5 mm. Clypeus flat, the apical middle truncate; carina between the antennæ short, sharp, and pointed; inner eye margins nearly parallel; ocelli in a low triangle; postocellar line subequal with the ocelloccipital line, but distinctly longer than the ocellocular line; scape short and curved; first joint distinctly longer than the second, apical joint normal and subequal in length with the preceding; head with large, distinct punctures, below the antennæ the punctures are smaller and just above the antennæ they are confluent; thorax with punctures somewhat larger than those on the head, on the mesonotum confluent; mesosternum not spined; inclosure of the propodeum with a median channel, the sided with short oblique striæ; venation normal; legs very feebly spined, the post-basitarsis nearly as long as the following joints; first abdominal segment but little longer than wide; seventh dorsal segment distinctly margined laterally, apex truncate; seventh ventral segment arcuately

emarginate, the lobes narrow and acute; abdomen dorsally with large, distinct punctures, closer on the first two segments; abdomen ventrally with the apical and lateral margins punctured, the second with some punctures basally. Black; most of the scape, broad stripes on inner orbits to the antennæ, line on metanotum (postscutellum of authors), complete band on third segment, band on sixth dorsal segment, a small spot at the base of the second dorsal segment, four anterior tibiæ and tarsi, basal half of posterior tibiæ, and base of post-basitarsis yellow; tegulæ reddish yellow; wings dusky hyaline, radial cell strongly dusky; venation brown.

Type-locality.—Horisha, Formosa. One male collected by Mr. T. Fukai.

Type.—Cat. no. 13377, U.S.N.M.

Family LARRIDÆ.

LARRA SPARSA, new species.

Seems to be related to *Larra tisiphone* (Smith), but is not that species.

Male.—Length about 9 mm. Anterior margin of the clypeus rounded anteriorly, without teeth; middle facial fovea large, shining broader below; lateral facial ridges shining; depression from the anterior ocellus strong; depression behind lateral ocelli narrow and arcuate; space between the eyes at the vertex greater than the length of the scape; first joint of flagellum shorter than the second, second longer than third; frontal area with distinct, rather large, and mostly separate punctures, on the crest, however, the punctures are confluent; on the occiput the punctures are smaller and widely separate; mesonotum with distinct, separate punctures; scutellum with smaller punctures, not impressed; mesopleuræ more finely punctured than the mesonotum, the suture faintly foveolate; upper surface of the propodeum transversely reticulate; posterior face almost perpendicular, the furrow deep, striate medially, punctured laterally; sides with sparse, distinct punctures; legs very feebly spined; second cubital cell narrower on the radius than the third; abdomen dorsally with distinct, separate punctures, larger on the apical segment; last ventral segment entire; inner spur of the posterior tibiæ much longer than the outer. Black; apical half of the mandibles piceous; posterior part of the tegulæ pale brown; anterior tibiæ and tarsi brown. Wings distinctly dusky, hyaline, iridescent; venation dark brown to black. Face and thorax with sparse white hair.

Type-locality.—Horisha, Formosa. One male collected by Mr. T. Fukai.

Type.—Cat. no. 13378, U.S.N.M.

TACHYTES FUNDATUS, new species.

Wings fulvo-hyaline; pubescence of the head and thorax fulvous; hair of pygidium dark bronze-color; four posterior tibiæ reddish-brown.

Female.—Length 20 mm. Anterior margin of the clypeus gently rounded, with three obtuse teeth on each side of the median area; the notch on the exterior margin of the mandibles very distinct; no line from the anterior ocellus; front with small, irregular punctures, vertex with the punctures hardly as distinct as those on the front; space between the eyes at the vertex hardly as great as the length of the first flagellar joint; first flagellar joint but very little longer than the second; pedicel not twice as long as wide; mesonotum, scutellum, and propodeum with small, close, irregular punctures; scutellum, metanotum (postscutellum of authors) and the dorsal aspect of propodeum with an impressed longitudinal line, which broadens into a triangular fovea at the apex of the propodeum; legs rather strongly spined; third cubital cell a little longer than the second on the radius; dorsal segments dulled by fine longitudinal scratches; ventral segments shining basally, irregularly punctured apically; pygidium rounded at the apex. Black; tegulæ and legs below femora red or reddish-brown; head and thorax with long fulvous hair and pubescence; hair of pygidium bronzy. Wings fulvo-hyaline, venation reddish-yellow.

Male.—Length 16.5 mm. Anterior margin of the clypeus slightly produced in the middle, otherwise as in female; space between the eyes at the top not more than two-thirds the length of the first flagellar joint; emargination of the seventh ventral plate arcuate, lobes broad, obtuse; hair of the pygidium silvery; hair on thorax not so dense. Except where mentioned the male agrees with female.

Type-locality.—Horisha, Formosa. A male and female collected by Mr. T. Fukai.

Type.—Cat. no. 13379, U.S.N.M.

TACHYTES AUROPILOSUS, new species.

Head and thorax with bright golden pile, abdomen with silvery; scape and legs below the coxæ red; wings dark brown. Perhaps most closely related to *Tachytes proxima* Nurse (1903), but the scutellum and upper surface of the propodeum have an impressed line in that species and the wings are "flavo-hyaline."

Female.—Length 17 mm. Anterior margin of the clypeus gently rounded, without teeth; mandibles with the exterior notch almost wanting, the broad basal part rounded off gradually; space between the eyes at the vertex about the same as the length of the second and third antennal joints; a faint carina from the anterior ocellus to

between the antennæ; depression behind the lateral ocelli arcuate posteriorly; first joint of the flagellum a little longer than the second, apical joint subequal with the preceding; mesonotum closely, rather coarsely punctured, scutellum more sparsely punctured; propodeum very sharply truncate behind, dull, rather finely, transversely striatopunctate, a medium, longitudinal impressed, irregularly striate line which under low power looks like a longitudinal ridge; posterior aspect of the propodeum with an impressed line; lateral aspect of the propodeum with irregular striæ; dorsal segments impunctate, ventral basal segments impunctate but the apical segments with distinct punctures; pygidium truncate apically; third cubital cell on the radius distinctly narrower than the second; legs rather strongly spined. Black; base of mandibles, scape, tegulæ, legs below coxæ except tibiæ spurs red; head and thorax, especially the anterior part, with dense golden pile obscuring the sculpture; abdomen with the usual silver bands; hair of the pygidium bronzy. Wings dark brown, venation except the black costa and stigma, pale brown.

Type-locality.—Horisha, Formosa. One female collected by Mr. T. Fukai.

Type.—Cat. no. 13380, U.S.N.M.

Two females from Trong, Lower Siam, collected by Dr. W. L. Abbott, differ from the above only in having the dorsal aspect of the propodeum without the impressed, striate line.