

JAPANESE HYMENOPTERA OF THE FAMILY TENTHREDINIDÆ.

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The following list of sawflies, with descriptions of new species, is based on material presented by Dr. K. Mitsukuri, of the Imperial University, Tokyo, Japan. Most of the specimens are supposed to have been taken either at Tokyo or Nagasaki. The collection is a very interesting one and contains many species which are striking from their divergence from the types of the same genera in America and Europe. This is notably the case with the genus *Cimbex*. Several species of this genus present a remarkable resemblance to our *Vespas*, and this resemblance is without question a protective one. Unfortunately there is some doubt as to the localities from which the specimens were obtained, yet nearly all of the specimens are labeled in Japanese characters, either in ancient or modern script, giving notes of locality, which are, for the most part, evidently very restricted. With the assistance of Dr. Philip Jaisohn, and with the aid of a Japanese dictionary, I have translated the labels on the backs of the cards on which the specimens are mounted and have given them in brackets at the close of the descriptions in connection with the numbers which the specimens bear. These labels are of mountains, small towns or places, particular woods, etc.; evidently localities well known to the collector, but not given on the ordinary maps of Japan. Other labels relate to the habits of the insects themselves, as, for instance, the *Lophyrus* is labeled as occurring on pine, and one of the species of *Cimbex* is called the "silkworm" in description of its cocoon, and another, the "bee," indicating its resemblance to some wild bee. All of the specimens are mounted on large flat cards, with the wings and legs beautifully spread, affording a very ready means of studying all the structural features except those of the central area of the lower surface. Most of the species in this collection prove to be new. This would seem to indicate that the insect fauna of Japan, at least in this family, is but scantily worked up. In all twenty-six new species are described.

1. PHYLLOTOMA INFUMATA, new species.

Female.—Length, 7 mm.; expanse, 16 mm.; robust, shining; front of head and base of antennæ clothed with rather long, whitish hairs; antennæ short, not longer than head and thorax, clavate, second joint about half as long as first, third nearly twice as long as fourth; sheath rather narrow, obliquely truncate at apex; claws simple, without inner tooth; outer veins of middle cells of hind wings nearly interstitial. Color black and orange yellow; all of head and meso- and metanotum, tibiæ and tarsi, and the tip of ovipositor, sharply defined, brownish black; pronotum, tegulæ, and the body, except as noted, and the femora, orange yellow; margin of basal plates yellow; wings strongly infuscated, veins dark brown.

Male.—Length, 5 mm.; expanse, 12 mm.; less robust than female, but agreeing in structural and colorational characters, except that the anterior tibiæ are yellow, infuscate above and at tip, and there is a tendency to the same in the other tibiæ and an accompanying yellowing of the basal half of the tarsal joints, particularly in the case of the fore and middle feet.

Type.—No. 3817, U.S.N.M.

Described from one female and twelve males. (Gifu Mountains), (No. 1).

2. PHYLLOTOMA? FLAVESCENS, new species.

Female.—Length, 9 to 10 mm.; expanse, 22 to 24 mm.; rather robust, shining; head and thorax not pubescent; antennæ as long as head and thorax, uniform in width, scarcely tapering, flagellum slightly narrowing on basal joints, third joint not much longer than fourth; claws minutely and evenly cleft at extreme apex, inner ray nearly as long as outer; sheath rather narrow, regularly rounded at apex; one discal cell in hind wings. Color of body and wings resinous yellow; compound eyes, black; antennal joints 3 to 5, dark brown, joint 5 paling somewhat apically; veins of wings for the most part yellowish; subcostal vein infuscated basally and apically; veins below stigma for the most part brownish, stigma entirely light yellow.

Type.—No. 3818, U.S.N.M.

Described from two females. (Gifu Mountains), (No. 3).

3. PTERONUS JAPONICUS, new species.

Male.—Length, 8 to 9 mm.; expanse, 16 to 18 mm.; robust, abdomen broad, depressed, surface smooth, shining, without pubescence; clypeus distinctly circularly emarginate; ridges about anterior ocellus strongly raised, with lateral branches extending to compound eyes; fovea breaking through frontal crest; antennæ slender, tapering, very elongate, at least two-thirds as long as body, joints 3 to 5 subequal, fourth slightly longest; procidentia scarcely prominent or projecting, slightly keeled; claws deeply and finely notched, inner ray nearly as large as outer; vena-

tion normal, third cubital nearly twice as long as wide; sides parallel; stigma regularly rounded, somewhat elongate but not acuminate. Color black; legs yellowish ferruginous; venter inclined to same color, distinctly so in one specimen; extreme tip of posterior tibiæ and the tips of joints of posterior tarsi brown; antennæ fulvous beneath; wings with basal two-thirds strongly infuscated, apical third hyaline; veins and stigma dark brown, the latter reddish on apical half.

Type.—No. 3819, U.S.N.M.

Described from two specimens (Ibuki), (No. 4).

4. BLENNOCAMPA RELIGIOSA, new species.

Female.—Length, 9 mm.; expanse, 20 mm.; very robust; abdomen much broader than thorax; surface smooth, shining, without pubescence; dorsum of thorax and abdomen glistening; vertex and head with coarse and not very close punctures; clypeus nearly truncate; ocellar basin breaking broadly into very broad antennal fovea; antennæ short, joint 3 considerably longer than 4; claws bifid, inner ray large, nearly equaling outer; sheath very narrow, somewhat elongate, tip somewhat pointed. Color, orange yellow and black; compound eyes, spot about ocelli, antennæ, except basal joint, meso- and metanotum and sheath, black; extreme apex of tibiæ and the tarsi, except base of first joint, brownish; wings strongly infuscated on basal three-fifths, balance nearly hyaline; veins and stigma, black; pectus, infuscated.

Type.—No. 3820, U.S.N.M.

Described from three specimens. (Gifu cemetery and Ari-tera—name of temple), (No. 7).

5. MACROPHYA IGNAVA Smith.

Macrophya ignava SMITH, Trans. Ent. Soc. Lond., 1874, p. 379, female.

Macrophya ignava KIRBY, List Hym. Brit. Mus., 1882, I, p. 266, female.

Five females and one male. (Gifu zuzushi), (No. 17).

6. MACROPHYA JAPONICA, new species.

Female.—Length, 10 mm.; expanse, 20 mm.; rather elongate, shining; without noticeable pubescence; clypeus very long, deeply and angularly notched, lobes rounded, clothed with sparse whitish hairs; antennæ clavate, joint 3 twice as long as 5, 4 but little longer than 5; sheath narrow, slightly tapering; claws bifid. Color, black shining; labrum, and large oval spot on posterior coxæ, white; anterior tibiæ and tarsi more or less pallid; line on second tarsal joint and the two following joints of posterior feet, together with base of last joint, whitish; wings nearly hyaline, veins and stigma dark brown.

Type.—No. 3821, U.S.N.M.

Described from one female. (Gifu), (No. 17a).

7. *MACROPHYA NIGRA*, new species.

Female.—Length, 9 mm.; expanse, 20 mm.; robust, not very elongate; head and thorax coarsely and densely punctured, opaque; clypeus large, not very deeply emarginate, lobes somewhat pointed; antennæ nearly filiform, slightly tapering toward tip; joint 3 nearly twice as long as 4, 4 and 5 subequal; sheath narrow, not elongate; claws bifid. Color, dull black; spot on base of mandibles and large oval spot on posterior coxæ, white; anterior tibiæ pallid on front face; red annulus covering basal half of posterior femora not quite reaching base; wings hyaline, veins and stigma dark brown.

Type.—No. 3822, U.S.N.M.

Described from one specimen. (Gifu), (No. 17b).

8. *MACROPHYA FEMORATA*, new species.

Male.—Length, 8 mm.; expanse, 17 mm.; rather slender; head and thorax coarsely punctured, opaque; antennæ rather stout, not longer than head and thorax, filiform; clypeus scarcely emarginate, almost truncate, anterior angles rather squarely produced; joint 3 much longer than 4, 4 and 5 subequal; claws minutely notched at extreme tip, rays scarcely divaricating, equal. Color, black; base of mandibles and apex of clypeus, white; lower face of anterior and middle legs, whitish; red annulus, more or less obscured with black, covering middle third of posterior femora; wings, hyaline; veins, brown.

Type.—No. 3823, U.S.N.M.

Described from two specimens. (Gifu), (17c).

9. *CIMBEX NOMURÆ*, new species.

Female.—Length, 22 mm.; expanse, 50 mm.; robust; head and thorax, and to a less extent, the abdomen, clothed with dense yellowish pubescence; clypeus twice as long as broad at middle, somewhat triangular, truncate and slightly emarginate at tip; labrum very minute; antennæ with six distinct joints, the last one of which forms the beginning of the club, which has three more or less distinct annulations, the basal one of which is more distinct than the others; claws with very minute inner tooth extending almost parallel to inner edge of claw; hind femora simple; sheath inflated broad, regularly rounded at tip; second recurrent interstitial with second cubital vein. Color, yellowish ferruginous and brown; head, except spot about ocelli and suture surrounding clypeus, pronotum, pleura, scutellum, basal plates, and abdomen for most part yellowish ferruginous; legs, except femora, of the general body color, but, together with the abdomen, somewhat darker than the light areas of the head and thorax; pectus and lower faces of coxæ and femora, spot about ocelli and band about clypeus, apex of third joint of antenna and the subsequent joints, mesonotum, metanotum, except as indicated, and spot or band on base of the four basal segments of abdomen, dark brown, almost black; wings strongly

infuscated with brown on upper half of anterior pair; lower half of anterior wings and the hind wings light yellowish brown.

Male.—Length, 25 mm.; expanse, 45 mm.; much more slender and elongate than the female, and with the antennæ slenderer and more elongate but agreeing with the latter in general structure and colorational characters. The femora are distinctly yellowish ferruginous on the upper or wing-side, and the black bands on the basal portions of the abdominal segments are more distinctly defined.

Type.—No. 3824, U.S.N.M.

Described from two females and five males. (Gifu and Nomura.) The name on the label, probably referring to the larva of this insect, designates it as a silkworm. (No. 22.)

10. CIMBEX TAUKUSHI, new species.

Female.—Length, 28 mm.; expanse, 56 mm.; very robust, abdomen very much broader than thorax; resembling the previous species somewhat in general appearance—not much larger, but stouter; pubescence on head, thorax, and abdomen dark brown or black, not dense; surface shining; clypeus broadly and distinctly emarginate; antennæ short, five distinct joints before club; club with one distinct annulation near base, and two others very indistinct, indicating four joints; claw with very minute inner tooth, lying close to inner edge and distinguished with difficulty. Color, reddish yellow, coppery and bluish brown; head for the most part, margin of pronotum, sutures of mesonotum lightly, scutellum, and abdomen, except basal segment and bases of following segments, decreasing with each, reddish yellow; the abdomen being much lighter colored, however, than the head and thoracic areas; spot about ocelli, more or less of clypeus meso- and metathorax, basal segment of abdomen above, sutures of the three following segments and most of lower surface of abdomen, together with the pleura, pectus, legs except tibiæ and tarsi, dark brown with distinct purplish metallic reflections; antennæ, tibiæ, and tarsi yellowish; wings mottled with light yellowish brown, posteriors paler; veins reddish brown.

Male.—Length, 33 mm.; expanse, 65 mm.; agrees structurally with the female; in colorational characters it is somewhat darker, the head and pronotum being almost altogether purplish brown. On the lower side of the body the purplish tint is very pronounced and striking; the abdomen beneath in the male being, however, almost altogether light colored except extreme margin of segments.

Type.—No. 3825, U.S.N.M.

Described from two females and one male. (Taukushi), (No. 23).

11. CIMBEX YOROFUI, new species.

Female.—Length, 18 mm.; expanse, 36 mm.; in form slender and wasp-like, closely resembling in general appearance one of the smaller *Vespa*s; abdomen narrow, not broader than thorax, head narrower

than thorax; clypeus triangular, as broad as long, tip slightly emarginate near center; labrum broad, spatulate, and in this as in other species often folded beneath mandibles, so as to appear wanting (antennae wanting); claws without an inner tooth, simple. Colors, light lemon-yellow and brown, the latter with bronzy reflections; face below antennae and lower cheeks including clypeus, labrum, and mandibles, pronotum, tegulae, scutellum, band on mesoscutum, basal plate except base, abdomen except central dorsal area, and legs for the most part, yellow; head except as noted, meso- and metanotum for the most part, center of dorsum of abdomen covering nearly all of basal sclerites, pleurae, and pectus, brown with purplish reflections; upper and lower surfaces, particularly basally of coxae, posterior femora except extremities, and more or less of upper edge of anterior parts, brown; wings, hyaline, except narrow fulvous stripe on upper half running from base to apex of the anterior pair.

Type.—No. 3826, U.S.N.M.

Described from a single specimen. (Yorofu), (No. 24).

12. CIMBEX MACULATA, new species.

Female.—Length, 18 mm.; expanse, 36 mm.; rather slender; abdomen not wider than thorax, head not much more than half as wide as thorax; densely clothed with long yellowish pubescence which almost entirely obscures the sutures of the head and thorax and forms a rather striking collar about the neck; clypeus broad, truncate, and slightly emarginate at apex; antennae short, clavate, with five distinct joints before the club; club with one distinct annulation near base and two other indistinct annulations; claws distinctly bifid, inner ray very closely applied to and nearly as long as outer ray. Color of head, meso- and metanotum, pectus and legs, greenish blue with strong metallic reflections; antennae dark brown, almost black; pronotum, pleurae, and abdomen for the most part, lemon yellow; the abdomen inclined to reddish and with a velvety appearance from the fine pubescence in addition to the longer hairs; abdomen marked above with a large purple spot on the center of basal segment and a central and a lateral row on the four following segments; a similar row of spots on the venter on either side near the margin; wings yellowish, veins reddish yellow.

Male.—Length, 15 mm.; expanse, 30 mm.; somewhat more slender than the female, but in structural and colorational characters agreeing very closely with the latter; central row of spots following the large purple one on the abdomen is sometimes almost wanting or the spots are much reduced in size; hirsute clothing of the body is much more pronounced than with the female, and the yellow areas of pronotum and mesopleurae are distinctly clothed with very long yellow hairs, the hairs of the head and rest of thorax, together with those of the legs, being of a lighter whitish yellow.

Type.—No. 3827, U.S.N.M.

Described from two females and three males. (Gifu), labeled "Gifu bee," (No. 26).

13. *ABIA IRIDESCENS*, new species.

Female.—Length, 14 mm.; expanse, 30 mm.; moderately robust, head and thorax strongly punctured, abdomen less coarsely punctured, basal segments glistening, apical segments pubescent, the pubescence of thorax and head long, somewhat scattering; clypeus truncate or but slightly emarginate; antennæ 7-jointed, the three terminal joints constituting a sort of club, but with distinctly marked joints; upper discal cell of hind wings very narrow, exceeding lower cell by about one-third its length; claws coarse and heavy, evenly notched. General color green with coppery reflections, reddish purple in certain lights; antennæ, tibiæ, and tarsi yellowish-brown; wings yellowish, with the upper half of anterior pair brown, sharply limited by the median and cubital veins.

Male.—The male does not differ from the female in any important colorational or structural characters, other than those indicating sex. The center of the third to the sixth dorsal sclerites of the abdomen is depressed and covered with a fine brownish pile.

Type.—No. 3828, U.S.N.M.

Described from two specimens, male and female. (Gifu Mountains), (No. 25).

14. *ABIA LEWISII* Cameron.

Abia lewisii CAMERON, Proc. and Trans. Nat. Hist. Soc. Glasgow, 1885-6, p. 270.

Five examples of this species are included in the collection, four of which are males. (Gifu Mountains), (No. 27).

15. *TREMEX SIMILIS*, new species.

Female.—Length, including sheath of saw, 31 to 34 mm.; expanse, 42 to 45 mm.; head and thorax clothed with rather long and dense yellow hairs; abdomen nearly smooth, hairs much shorter and not particularly noticeable except along sides and on the venter; claws with short, sharp inner tooth, projecting at right angles with claw; antennæ 15-jointed; terminal dorsal segment with a sharp triangular projection, strongly toothed or serrate and as long as wide at base. Color tawny yellow; meso- and metanotum, black; basal segment of abdomen and narrow base of each of following segments increasing posteriorly yellow; terminal sclerite (seventh) yellow, black limited, to a spot covering center; a broad black dash on either side of eighth segment; posterior and middle legs more or less black; posterior legs black except lower edge of tibiæ and tarsi and nearly all of apical joints of the latter; anterior pair reddish, middle pair reddish, infuscated on basal joints; thorax beneath and more or less of the abdomen, dark brown or black; antennæ black, except two or three basal joints; wings resinous yellow; veins yellowish brown.

Type.—No. 3829, U.S.N.M.

Described from three females. (Gifu woods), (No. 28).

16. SIREX ANTENNATUS, new species.

Female.—Length, including sheath, 27 to 32 mm.; expanse, 35 to 40 mm.; a slender species; head and thorax clothed with long black hairs; abdomen nearly smooth, very minutely and finely punctured, scarcely shining; apex of terminal segment produced in a spatulate-shaped projection 3 to 4 mm. in length, serrated on the edges on apical half; sheath projecting free from body 9 to 11 mm.; ovipositor proper 15 to 18 mm. long; claws with strong inner tooth projecting nearly at right angles; antennæ 22-jointed. Color, black or very dark brown; face and region beneath antennæ slightly inclined to reddish; large oval spot back of compound eyes, joints 12 to 17 of antennæ, outer half of basal plate, small spot on the side of the sixth abdominal segment, and on base of ninth interrupted centrally, spot on each side of the terminal segment, bases of tibiæ and bases of metatarsal joints, white; wings very slightly yellowish, nearly hyaline, veins dark brown.

Type.—No. 3830, U.S.N.M.

Described from two specimens. (Giba), (No. 29).

17. RHOGOGASTERA VIRIDIS Linnæus.

Tenthredo viridis LINNÆUS, Syst. Nat., 10th ed., 1758, I, p. 557.

Tenthredo scalaris KLUG, Mag. Ges. naturforsch. Freunde, Berlin, 1814, VIII, p. 194, female and male.

Tenthredo scalaris SMITH, Trans. Ent. Soc. Lond., 1874, p. 382.

Rhogogastera viridis KONOW, Deutsche Ent. Zeit., 1884, XXVIII, p. 338.

Believed by Smith to be identical with the old Linnæus species, which has a very long bibliography. (Collected at Ibuki), (No. 15).

18. TENTHREDO FLAVIDA, new species.

Female.—Length, 14 to 15 mm.; expanse, 33 mm.; rather slender, head as broad as thorax, abdomen much constricted basally; clypeus very broadly, deeply, and circularly notched; lateral lobes very narrow and elongate; labrum longer than wide, fringed with long yellow hairs; claws evenly, deeply notched; sheath narrow elongate, regularly rounded at apex. Color, light yellowish, more or less marked with yellowish brown; joints 3 to 6 of antennæ, brown; mesothorax somewhat brownish, also apices of the first segments and all of fourth and fifth and more or less of terminal segments of abdomen; posterior femora yellowish brown except apical third; tibiæ and tarsi also yellowish brown; posterior femora and all tibiæ externally more or less distinctly marked with a line of black or dark brown; sutures of thorax for the most part marked with dark lines; wings nearly hyaline, yellowish; costa and stigma yellow, veins dark brown.

Male.—Length, 13 mm.; expanse, 25 mm.; general characteristics as in female, both in structural and colorational features. The antennæ are, however, wholly brown except the two basal joints.

Type.—No. 3831, U.S.N.M.

Described from three specimens, two females and one male. (No label), (No. 6).

19. TENTHREDO PLATYCERUS, new species.

Female.—Length, 15 mm.; expanse, 28 mm.; rather robust, thorax and abdomen of about equal width, the latter scarcely at all narrowed basally; clypeus very narrowly and acutely notched at center, lobes very broad, rounded; antennæ long, much longer than head and thorax; flagellum slightly compressed centrally, joints 3 and 4 subequal; claws very broad, rays nearly equal, parallel. Color, light tawny yellow; antennal joints 5 to 8 for the most part, large spot on vortex, spot on each of the three anterior lobes of mesonotum, small spot just above basal plates, triangular area on dorsal segments 3 to 7, black; pleuræ, pectus, and coxæ for the most part, and posterior femora, black; a few dark spots on the venter of abdomen; wings nearly hyaline, slightly yellowish; costa and stigma yellow, other veins for the most part dark brown.

Male.—The male agrees with the female except that the antennæ are longer, sometimes nearly as long as the body and distinctly compressed, and the hind femora are reddish yellow, with more or less of the sides infuscated. The black spot on the metanotum is also wanting; the antennæ are sometimes almost entirely yellow.

Type.—No. 3832, U.S.N.M.

Described from nine specimens, of which seven are males. (Gifu zuzushi and woods), (No. 14).

20. TENTHREDO PROVIDENS Smith.

Tenthredo providens SMITH, Trans. Ent. Soc. Lond., 1874, p. 382, female.

Tenthredo providens KIRBY, List Hym. Brit. Mus., 1882, I, p. 304, female.

Represented by seven specimens, five of which are females. (Gifu and Ibuki), (No. 16).

21. TENTHREDO MORTIVAGA, new species.

Female.—Length, 12 mm.; expanse, 23 mm.; head wider than thorax, abdomen noticeably constricted basally; clypeus broadly and not very deeply emarginate, lobes somewhat pointed at outer angles; antennæ shorter than head and thorax, third joint nearly twice as long as fourth; inner tooth of claw very close to outer, parallel with it. Colors, black and yellowish-white; transverse band between compound eyes, including bases of antennæ, the clypeus, labrum, and mouth parts, large spot on the cheeks, angles of pronotum, tegulæ, scutellum, with post-scutellum, scutum, and wider margins of basal plates, narrow edge of abdomen above and most of venter, very light yellowish, almost white; legs and antennæ except basal joint yellowish brown; the anterior and middle femora very light yellowish, almost white; posterior femora marked with black on the inner and upper edges; segments of the abdomen above, from the fourth outward, reddish; coxæ black, except at apex; pleuræ and pectus, black; wings nearly hyaline, slightly

smoky beneath stigma, veins, including stigma, dark brown; costa yellowish brown.

Type.—No. 3833, U.S.N.M.

Described from two specimens. (Gifu zuzushi), (No. 19).

22. TENTHREDO FUSCOTERMINATA, new species.

Female.—Length, 16 mm.; expanse, 34 mm.; head very large, quadrate, as wide as thorax, abdomen strongly constricted basally; antennae longer than head and thorax, slender, joint 3 nearly one-third longer than 4; clypeus truncate centrally with a narrow projecting lobe at either edge; ocellar basin strongly depressed, roughened, breaking through antennal tubercle; occipital margin of head strongly and sharply produced; claws evenly notched, rays parallel and scarcely divaricating. Color, reddish yellow, more or less obscured, with light reddish brown on the vertex, mesonotum and bases of abdominal segments above; legs and venter somewhat paler; tarsi, especially posterior pair, reddish brown; flagellum of antennae dark brown; the last five segments of abdomen dark brown, almost black; wings light yellowish, nearly hyaline, except apical third of anterior pair, which is sharply and distinctly infuscated.

Type.—No. 3834, U.S.N.M.

Described from two specimens. (Osaka), (No. 20).

23. TENTHREDO GIFUI, new species.

Female.—Length, 13 mm.; expanse, 25 mm.; general surface highly polished, shining; thorax, distinctly punctate; head quadrate, wider than thorax; clypeus deeply and broadly emarginate; lateral lobes narrow, produced; labrum half egg-shaped, about as long as wide; antennae reaching to the second segment of the abdomen, slender, joints slightly diminishing in length from the third to last, distinctly enlarged at tips, especially the basal joints; mouth parts clothed with rather long whitish hairs; cheeks, pleura, and legs clothed with fine whitish hairs; claws notched at tip, rays scarcely divaricating, parallel; sheath long, narrow, rounded at tip, not or scarcely projecting beyond abdomen. Color black; two small spots on base of clypeus, all the labrum, mandibles, except tips; small line on posterior upper edge of pronotum; large spot covering the lateral third of metascutellum; spot on meta-epimeron, whitish-yellow; tips of mandibles, palpi and tips of two pairs of anterior femora and the tibia and tarsi reddish yellow; the middle legs much more strongly infuscated than the anterior pair; posterior legs dark brown or black; wings hyaline or slightly resinously infuscate; veins dark brown, almost black.

Type.—No. 3855, U.S.N.M.

Described from nine specimens, labeled Gifu woods (No. 18).

24. DOLERUS JAPONICUS Kirby.

Dolerus japonicus KIRBY, List Hym. Brit. Mus., 1882, I, p. 228, female. (Gifu zuzushi), (No. 2).

25. *DOLERUS OBSCURUS*, new species.

Female.—Length, 7 mm.; expanse, 15 mm.; rather robust; head and thorax coarsely punctured, opaque, and with abdomen beneath rather densely clothed with grayish hairs; abdomen smooth, shining; antennæ about as long as head and thorax, joint 3 much longer than 4; claws with very minute inner tooth; sheath rather long, tapering, rounded at tip. Color dull black, pronotum reddish, tegulæ pale, extremely narrow posterior margins of abdominal segments whitish; legs reddish ferruginous; tarsi and tibiæ distinctly and rather uniformly infuscated, coxæ and trochanters black; femora more or less infuscated on upper edge; wings hyaline or nearly so; veins and stigma dark brown.

Male.—Much more slender and elongate than female; antennæ much longer than head and thorax, joint 3 but little longer than 4. Color uniformly dull black; the extreme angles of pronotum together with tegulæ reddish yellow; legs yellowish and infuscated, posterior femora black except basally; extreme tips of posterior tibiæ dark brown, all tarsi and particularly posterior pair infuscated; wings as in female, except that the stigma is somewhat narrower and not so distinctly marked with white at base.

Type.—No. 3835, U.S.N.M.

Described from two specimens. The male was associated with the female by the collector, but differs considerably in color and general appearance; not, however, more than is often seen in this genus. (No locality given), (No. 5).

26. *DOLERUS UMBRATICUS*, new species.

Female.—Length, 11 mm.; expanse, 22 mm.; very robust, abdomen broader than thorax, depressed and with sharp central ridge; head and thorax, particularly the former, very deeply and coarsely rugose; abdomen smooth, shining; clypeus deeply circularly emarginate; antennæ scarcely longer than head and thorax, tapering, joint 3 distinctly longer than 4; claws with rather obtuse and strong inner tooth projecting at right angles to claw; sheath broad, obliquely tapering, covered and margined with rather long curved hairs; stigma narrow. Color of head and thorax dull greenish black and red, the latter confined to the pronotum and anterior and lateral lobes of mesonotum, together with tegulæ; abdomen metallic blue-black; legs black with bluish reflections particularly noticeable on femora; wings hyaline, veins black or very dark brown.

In one specimen the thorax has distinctly greenish reflections and the anterior lobe of the mesonotum has the same greenish-black color as the head and other dark areas of the thorax.

Type.—No. 3836, U.S.N.M.

Described from six specimens. (Gifu zuzushi and Hayashi), (No. 8).

27. DOLERUS PICINUS, new species.

Female.—Length, 10 mm.; expanse, 20 mm.; robust, head and thorax coarsely punctured, rugose; abdomen smooth, shining; body, except metanotum and basal dorsal sclerites of abdomen, clothed with fine white sericeous pile, notably on head and thorax; antennæ filiform, considerably longer than head and thorax, joint 3 considerably longer than 4; claw with sharp inner tooth. Color, dull black on head and thorax, shining on abdomen; legs black, anterior tibiæ somewhat reddish basally; wings hyaline, veins black.

Male.—Agrees with the female in general structural and colorational characters; joint 3 of antennæ, however, is not so distinctly longer than 4; the body is very elongate and slender, with a length of 8 mm., and a wing expanse of 15 mm.

Type.—No. 3837, U.S.N.M.

Described from ten specimens, four males and six females. (Gifu and zuzushi), (No. 10).

28. HYLOTOMA CAPTIVA Smith.

Hylotoma captiva SMITH, Trans. Ent. Soc. Lond., 1874, p. 376, female.

Hylotoma captiva KIRBY, List Hym. Brit. Mus., 1882, I, p. 62, female.

One female. (Gifu zuzushi), (No. 8).

29. HYLOTOMA SIMILIS Vollenhoven,

Hylotoma similis VOLLENHOVEN, Tijdschr. Nederl. Entom. Ver., 1860, III, p. 128, female.

Hylotoma imperator SMITH, Trans. Ent. Soc. Lond., 1874, p. 374, female and male.

Hylotoma similis KIRBY, List Hym. Brit. Mus., 1882, I, p. 61, female and male.

Four females and seven males. (Ibuki Yama and Gifu zuzushi), (No. 11).

30. HYLOTOMA JAPONICA, new species.

Female.—Length, 12 mm.; expanse, 25 mm.; robust; claws, simple; stigma, very narrow; acuminate. Color of head and thorax, dark metallic green; head and most of thorax green; metathorax and abdomen bluish with metallic luster; all of body smooth, glistening; legs, greenish, tibiæ pallid, anterior tarsi very slightly infuscated toward tip; middle pair dark brown except most of basal joint; hind pair uniformly dark brown or with only the basal portion of metatarsus pale; hind tibiæ also brown on apical third; wings yellowish, infumated, with distinct transverse band extending across anterior pair from the stigma to the posterior border.

Male.—Agrees with the female except in being smaller; length, 8 mm.; expanse, 17 mm.

Type.—No. 3838, U.S.N.M.

Described from five specimens, two males and three females. (Gifu zuzushi), (No. 12).

31. *HYLOTOMA PAGANA* Panzer.

Tenthredo pagana PANZER, Faun. Insect. Germ., 1798, V, p. 49, pl. XVI, and a long bibliographic list.

Five females. (Osakura), (No. 13).

32. *PACHYPROTASIS PALLIDIVENTRIS*, new species.

Female.—Length, 9 mm.; expanse, 16 mm.; rather robust; surface of body shining; head, thorax, and abdomen of about equal width; clypeus very broadly and evenly emarginate; tips narrow, pointed; labrum much broader than long, somewhat emarginate at tip; antennæ very slender, elongate, third joint much longer than fourth; claws deeply and rather evenly notched at tips; sheath very narrow, rather obtusely pointed; general color black, marked on the head, thorax, and lower surface of body and legs with very light yellow, almost white; on the head the white occurs as a narrow line on the inner orbits and bends at right angles posteriorly so as to inclose a large quadrate black spot, including the ocelli, and covering the entire vertex; in front, the white extends from the base of the antennæ anteriorly, including all of the mouth parts and cheeks; on the body, the white is limited to the posterior upper edge of the pronotum, the tegulæ, line about the middle lobe of mesonotum, the mesoscutellum, postscutellum, metascutellum, and the ventral surface of the thorax and abdomen with the exception of a central black band extending along the center of the sternum and the venter of the abdomen; legs, including coxæ and trochanters, for the most part yellowish-white; the anterior pairs of legs have a broad black band on the upper side of the femora, tibiæ, and tarsi; the posterior legs have the outer third of the femora black, and also the tip of the tibiæ and all the tarsi; the basal two-thirds of the posterior tibiæ are yellowish-brown; the extreme tip of the abdomen is whitish and there is a slight line of white on the posterior edge of some of the dorsal terminal sclerites; wings hyaline, or nearly so, with the veins and stigma dark brown or black.

Male.—Much smaller and more slender than the female; length, 7 mm.; expanse, 15 mm.; antennæ as long as body; structural characters in general as in female; color as in female except that the venter of abdomen is entirely white on the apical half of the abdomen and the posterior legs correspond in color with the anterior legs, except that in addition to the band on the upper side of the femora there is a corresponding band on the lower side also; the abdominal segments above are more distinctly marked with white than in the case of the female.

Type.—No. 3856, U.S.N.M.

Described from two females and one male, labeled Gifu zuzushi (No. 21).

33. LOPHYRUS JAPONICUS, new species.

Female.—Length, 7.5 mm.; expanse, 16 mm.; very short, robust; antennæ 21-jointed, the joints after the first two armed on the inner edge with two rays, the lower row of rays being much longer than the upper, and the longest of them being longer than the first two joints of the antennæ together; head and thorax coarsely punctured, the general surface, however, shining; the abdomen polished, shining. Color black, with bluish reflections on abdomen; edge of pronotum, scutellum, tibiae for the most part, and tarsi, pale; apical quarter of posterior tibiae black: wings hyaline, veins black or dark brown.

Male.—Somewhat smaller than female, and less robust; the rays of the antennæ are very much longer than in the female, and finer, distinctly feathered, the longest rays equaling half the antennæ in length. Color as in female, except that the scutellum is of the general black of the body.

Type.—No. 3839, U.S.N.M.

Described from two females and nine males, mounted in some cases with the brownish silken cocoon, labeled as having been collected or reared on pine. (Gifu), (No. 9).