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**DESCRIPTIONS AND RECORDS OF SOME FOSSORIAL WASPS
IN JAPAN (HYM., SPHECIDAE)**

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DESCRIPTIONS AND RECORDS OF SOME FOSSORIAL WASPS IN JAPAN (HYM., SPHECIDAE)*

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1. *Cerceris okumurai* sp. nov.

This species the specimen of which was captured by Mr. T. Okumura on the Island of Amami-Oshima, one of the Ryukyus, is very characteristic in the structure of the clypeus and can easily be separated from the known species. It is also distinct in the general coloration, in the bidentate mesopleuron, the bituberculate second sternite of the abdomen and in the narrowly elongate pygidial area. The sculpture of the area dorsalis is very peculiar, but it seems to be an instance in variation.

♀. Length 13.5 mm. Coloration on dorsal aspect: Fig. 1 (white areas suffused yellow, dotted areas ferruginous), on anterior side of head: Fig. 2, mandibles black, base externally yellow, its apical area and inside largely brown (Fig. 3), antennal joint 1 except ferruginous base and apex yellow, joint 2 dark brown, polished, from joint 3 to basal third of ultimate joint lustreless black, underside of flagellar joints and apical 2/3 of ultimate joint ferruginous. Yellow on underside of body: Front coxae largely, mesosternum on central area, two vague spots on metasternum (surrounded by ferruginous), two vaguely outlined large maculae on anterior portion of sternite 2, two irregular-shaped lateral maculae on 3 and latero-apical areas on 5; ferruginous to dark brown are a patch on mesopleuron below extending to mesosternum, meso- and metacoxae beneath, greater part of sternite 1, rest of 2 and 3, base narrowly of 4, sides and apical narrow vague patch of 5, and two vaguely outlined large lateral patches of 6. Mesopleuron on epimeral area with a yellow patch, humeral angle on posterior half ferruginous. Wings hyaline, slightly clouded, anterior portion from middle apically much darker, especially darkened on apical third of radial cell and its posterior portion (Fig. 1).

Head from above (Fig. 1) with OOD : POD : OCD \div 16 : 9 : 25, postocellus relatively 6.7 (oblique length 7.7), antero-inner orbit of postocellus highly raised, postero-lateral orbital area gently roundly depressed. Head seen in front: Fig. 2, WH : IOD = 108 : 56, OAD : WAS : IAD : 16 : 7 : 11, OTD : ITD = 17 : 34, LC : ACD : AOD (each vertical view) = 35 : 8 : 25. Median lobe of clypeus broadly roundly excavated, with upper middle (together with lower middle of supra-clypeal area) and lower lateral points highly produced, the former in tubercle-form, the latter plate-like, with apex rounded (Figs. 2, 3 and 4); lower lateral protuberances connected with each other by a slightly curved carina, but the structure can not be said to be a lamina, apical margin comparatively thick, dark brown in colour and medianly broadly produced (Fig. 2), labrum consists of three parts, thick median and thin semitransparent laterals, the former gently roundly emarginate at apex and the latter nearly semicircular (Fig. 2), the depressed disc of clypeus with a broad discoloured window towards middle, (probably varied with individual), mandible with two blunt teeth on inner margin (Fig. 2). Head seen in profile: Fig. 4, with temple as broad as eye. Antennal joints 1-3 comparatively long (Fig. 2), joint 3 approximately 2.7 times as long as broad at apex (nearly rounded in cross section), joints 6-11 subequal in length to one another, about 1.3 times as long as wide, ultimate joint a little longer, a little curved, apically slightly narrowed, with apex obliquely truncated, the truncated area smooth and

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polished (Fig. 5). Pronotum with antero-lateral corners rounded. Mesopleuron bidentate (Fig. 6; T, tegula, M, mid coxa), one of the teeth is a protuberance of the anterior end of precoxal carina, metasternum: Fig. 7 (H, hind coxa; M, mid coxa), area dorsalis on propodeum roundly raised, almost without median furrow, only the trace can be seen on anterior portion in oblique light. Abdominal segment 1 wider than long (41 : 30, seen parallel to anterior aspect), with a distinct medio-apical rounded impression, on tergites 2-4 similar but much weaker impression observable. Pygidial area: Fig. 10; sternite 2 with two low rounded tubercles instead of platform (Fig. 9), remaining sternites with latero-posterior incrustation weak, only on sternite 5 somewhat marked, sternites 4 and 5 each with a broad median furrow on apical half, on 5 deeper than on 4; hypopygium: Fig. 11, with a lateral protuberance on each side near apex, from ventral side

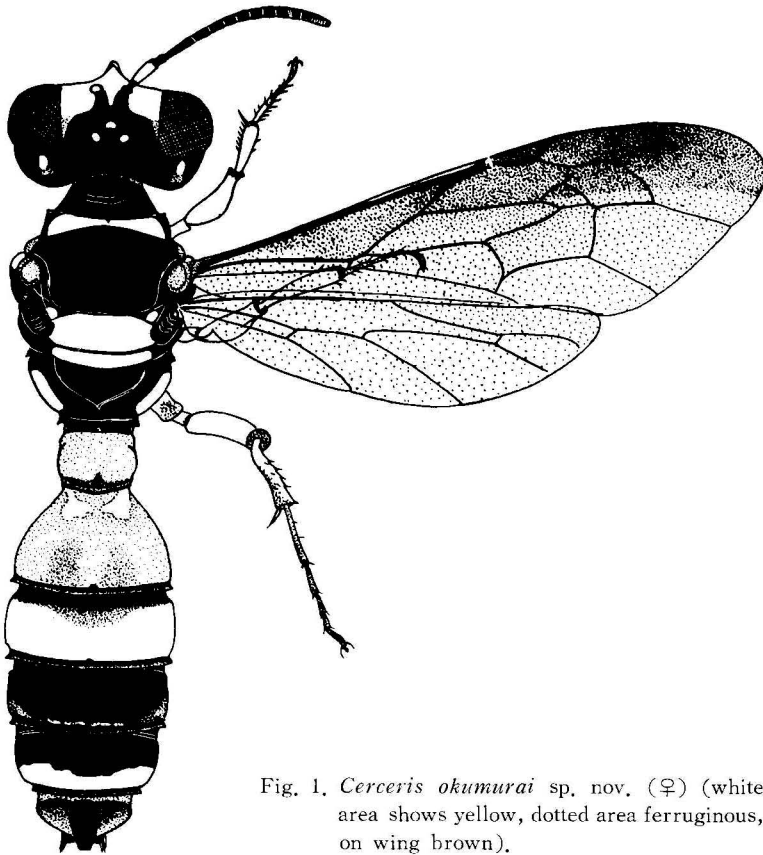
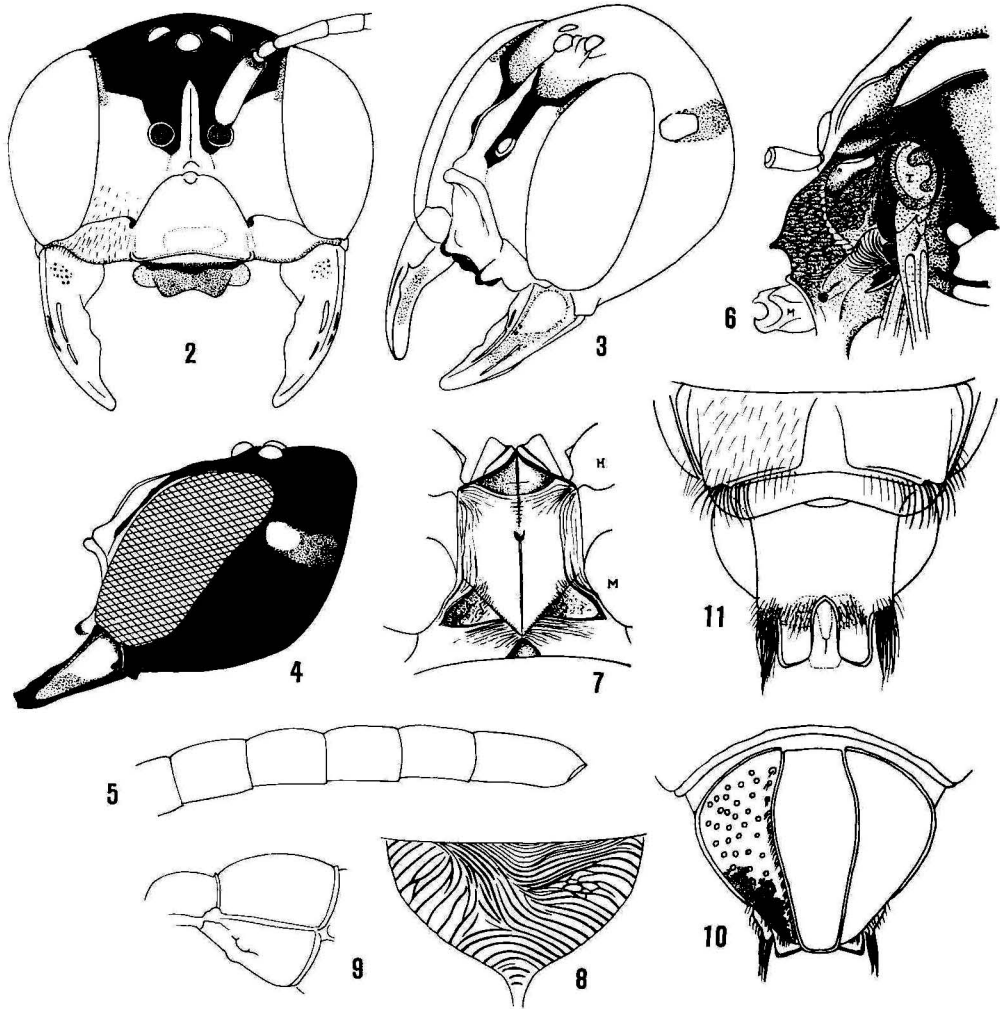


Fig. 1. *Cerceris okumurai* sp. nov. (♀) (white area shows yellow, dotted area ferruginous, on wing brown).

of which pencil of hairs stretched posteriorly, apical protuberances comparatively broad. Wing venation: Fig. 1. Hind coxae without longitudinal carina on inner side.

Vertex subreticulate-punctate with medium-sized punctures, partly rugoso-punctate, upper frons longitudinally, more finely and closely rugoso-punctate or striato-punctate, lower frons and lateral lobes of clypeus fairly closely duplipunctate, median lobe finely sparsely punctured, mixing a few large hair-bearing punctures. Mesonotum longitudinally comparatively finely rugoso-punctate, on posterior area nearly rugoso-striate, scutellum similarly, but slightly more coarsely so, postscutellum finely sparsely punctured; mesopleuron (Fig. 6) and propodeum transversely rugoso-punctate, on the latter near area dorsalis simply reticulate; area dorsalis irregularly striate (Fig. 8). Abdominal tergites sparsely punctured with moderate-sized punctures, intervals fairly



Figs. 2-11. *Cerceris okumurai* sp. nov. (♀).

2, Head seen in front, 3, Head seen obliquely from side, 4, Head seen in profile, 5, Apical five joints of antenna, 6, Mesopleuron seen obliquely from above (T, tegura; M, mid coxa), 7, Metasternum (H, hind coxa), 8, Area dorsalis on propodeum, 9, The 2nd segment of abdomen in lateral view, 10, Pygidial area, 11, Hypopygium.

broad, and in some places larger than punctures, carrying numerous micropoints, sternite 2 basally coarsely, irregularly, not strongly wrinkled, latero-posterior portions with a few large punctures, rest of the sternite finely, sparsely punctured, remaining sternites with latero-posterior portions duplipunctate, with a few large punctures, and medianly broadly, finely, sparsely punctured.

Holotype: ♀, Island of Amami-Ohshima (Simmura), 28. VII. 1967, T. Okumura leg. (Coll. Tsuneki).

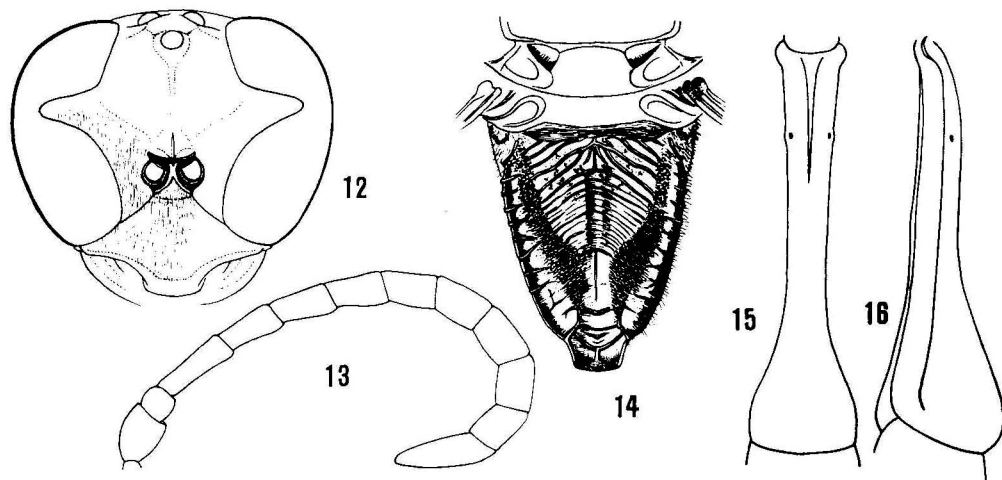
2. *Trypoxylon konosuense* sp. nov.

This species (♀) is very characteristic in the structure of the anterior margin of the clypeus. Among the known species *T. tanoi* of Formosa is somewhat similar in this respect. But it is quite different in other characters. The sculpture of the propodeum in this species is also

peculiar. The wholly black body, the stout antennae and legs, the finely punctured and coriaceous mesonotum and the narrowly petiolated first segment of the abdomen also give this species further distinctions.

♀. Length 10-11 mm. Wholly black; mandibles on apical half except tip glittering reddish brown; tibial spurs and spines of legs ferruginous. Wings hyaline, apical margin clouded.

Head from above with ocelli in a nearly equilateral triangle, anterior ocellus slightly smaller, OOD : POD : OCD = 3 : 5 : 12, postocellus relatively 4.5 and the space between anterior and posterior ocelli 5, the area slightly anterior to ocellular line gently concavely impressed, median ocellus markedly inclined anteriorly, with its surrounding area also impressed, frontal median furrow distinct up to supra-antennal tubercle, on upper portion comparatively deep and narrow and on lower portion broad and shallow, upper frons on both sides of the furrow roundly raised. Head seen in front: Fig. 12, interocular distance at vertex and at clypeus equal in length (20 : 19), supra-clypeal area very much wider than high, oculo-antennal distance nearly as wide as antennal socket, supra-antennal tubercle rounded, with a weak smooth median carina, lower margin of the tubercle distinctly carinated, its lower aspect gradually turning to interantennal area, both smooth and polished and marginated on each side with an inner wall of the antennal socket, the area sometimes with a feeble median carina, sometimes not; anterior margin of clypeus broadly flatly produced in middle, with apex gently rounded (Fig. 1). Antennal joint 3



Figs. 12-16. *Trypoxylon korosuense* sp. nov. (♀).

12, Head seen in front, 13, Antenna. 14, Scutellum, postscutellum and propodeum, 15, Petiole of abdomen, 16, Ditto, lateral view.

in narrowest view 2.7 times as long as wide at apex, with apical portion somewhat suddenly incrassate, in widest view 2.5 times so, subcylindric, slightly wider towards apex. Collar of pronotum with posterior half depressed, sharply bordered against anterior incrassate area, not discoloured to brownish, postscutellum with median line feebly raised on posterior half. Propodeum with area dorsalis vaguely outlined with comparatively broad shallow grooves, marked off rather by the difference of sculpture on the surrounding areas, median furrow broad and fairly deep, posterior inclination medianly with a deep broad furrow, V-shaped in cross section, lateral margins of the inclination strongly carinated up to the lower end of stigmata, with a row of transverse coarse carinae on their inside areas (Fig. 14). Abdominal segment 1 petiolated (Figs. 15 and 16, dorsal and lateral view) reaching posteriorly slightly beyond the apex

of hind femur, with stigmata located at about 1/5 from base, in length slightly more than as great as the two following segments united and 3.6 times as long as broad at apex, ratio of maximum and minimum widths approximately 2.5 (constant in 3 specimens), in lateral view markedly incrassate on apical portion (Fig. 16). In fore wing radial cell with apex not reaching near outer margin, vestigial 2nd cubital cell with outer vein partly completely disappeared, but distinctly wider than high. Legs with each segment comparatively short, hence robust, front metatarsi only thrice as long as broad in widest view, relative length to maximum width of each femur from the 1st pair approximately 2.9, 2.6 and 3.7.

Vertex and frons very minutely granulate, mat, only on impressed areas in front of oculo-cellular line with a few sparse fine punctures, incisions of eyes fairly shining, clypeus closely punctured with fine points, the points basally weaker and closer, apically somewhat sparse and more distinct, median produced area on anterior margin impunctate, at base very finely and closely striate and on apical portion polished, but not always flattened smooth. Mesonotum finely punctured, averaged interspaces in two specimens nearly as large as, in the remaining one (from *K^{nosu}*) larger than punctures, interspaces very minutely coriaceous, with surface mat as in *figulus* or in *pacificum*, on posterior margin coarsely crenate, the crenae shorter towards sides, mesopleuron similarly punctured, but the intervallic sculpture weaker and more shining. Area dorsalis on basal portion obliquely, on apical portion rather arcuately strongly coarsely striate, the striae posteriorly slightly weaker and sometimes on medio-apical area obsolete, on the surrounding areas sculpture fine, anteriorly closely rugoso-punctate, posteriorly closely obliquely striolate, the area lying outside this microsculptured part till lateral carina very coarsely transversely striate; posterior inclination with a few transverse carinae on posterior portion of median furrow (sometimes obsolete), on the remaining lateral areas transversely striate, surface in the median furrow smooth and polished, only near the brims very finely rugulose; sides of the segment obliquely (posteriorly rather transversely) finely and closely striate, with intervals scattered with minute points. Abdominal tergites covered with minute feeble hair points.

Frons except raised area and clypeus wholly covered with close appressed silvery hairs, mixing sparse long erect hairs on clypeus, on its basal area the hairs not bent towards median line. Hairing on other portions of body and legs normal, white in colour.

♂. Unknown.

Holotype: ♀, Saitama Pref. (*K^{nosu}*), Japan, 22. VI. 1962, T. Nambu leg. (Coll. Tsuneki).

Paratypes: 1 ♀, the same place, 22. VI. 1961, T. Nambu leg.; 1 ♀, Aomori Pref. (Kizukurimachi), 9. VIII. 1967, K. Shimoyama leg. (Coll. Tsuneki).

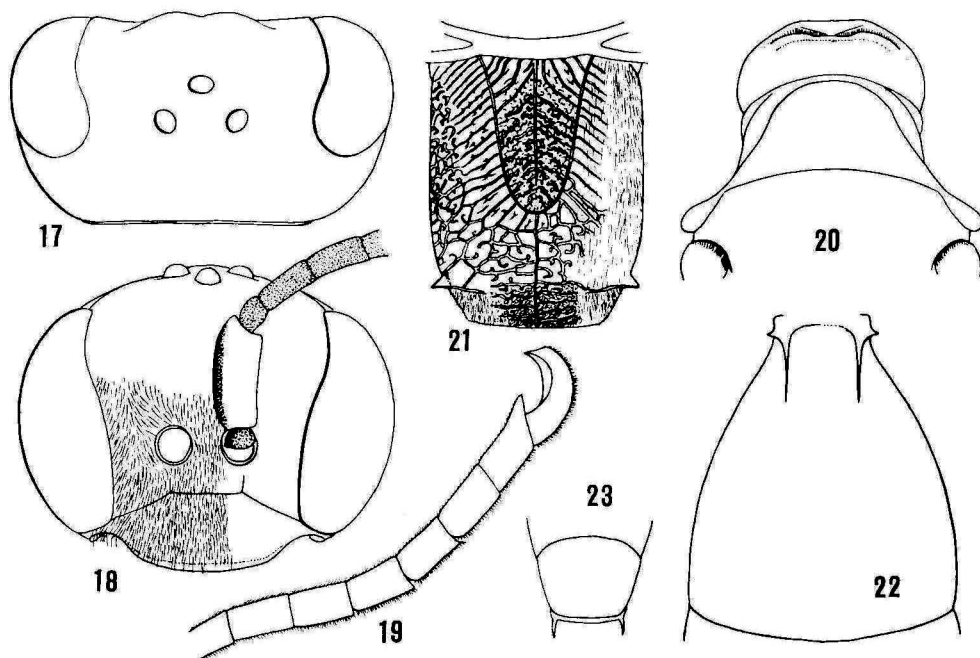
3. The first record of *Didineis* in Japan, with a description of a new subspecies of *sibirica* Gussakovskij

The easternmost record of distribution of the subgenus *Didineis* in the Palaearctic Region has been East Siberia (Irkutsk) and by the present discovery in Central Japan it becomes to cover roughly whole the Palaearctic Region.

Alysson (Didineis) sibiricus nipponicus subsp. nov.

(*Didineis sibirica* Gussakovskij, Trav. Inst. Zool. Acad. Sci. URSS, 4: 607, 1937.)

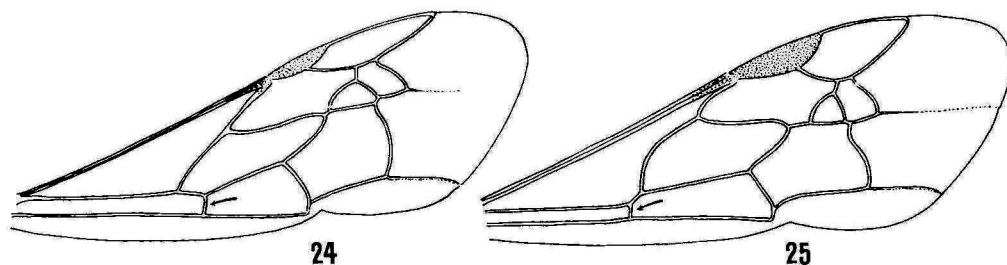
The present subspecies (♂) closely resembles *D. sibirica* Gussakovskij, described with a female from Irkutsk. It is similar to this in that the abdomen wholly black in colour, the joints of antennal flagellum from middle apically nearly 1.5 times as long as wide, and in having tomenta on posterior aspect of propodeum and latero-apical areas of abdominal tergites 1 and



Figs. 17-23. *Alysson (Didineis) sibiricus nipponicus* subsp. nov. (♂).
 17, Head seen from above. 18, Head seen in front, 19, Apical 8 joints of antenna,
 20, Pronotum, 21, Propodeum, 22, First abdominal segment, 23, Pygidial area,

2. Apart from the sexual differences, however, it differs from *sibiricus* in having the antennal joint 1 largely yellow in colour, the legs much lighter, the propodeal spines much longer and the punctuation on the mesopleuron and sculpture on the area dorsalis otherwise. Further the pilose on lower frons and clypeus brassy in colour, not silvery. All these differences seem to merit to separate the two forms at the subspecific level, but insufficient to divide them into any higher categories.

♂. Length about 5.5 mm. Black, antennal joint 1 except pale brown upper side wholly yellow; mandibles medianly, palpi, ultimate joint of antenna, front sides of femora and tibiae of all legs, apical portions of fore and mid femora and posterior aspect of fore and mid tibiae pale brown; tegulae, rest of legs brown, mid and hind tarsi somewhat darker; antennae slightly brownish black. Wings hyaline, somewhat pale brownish yellow, radial cell, cubital cell 2,



Figs. 24-25. Fore wing venation.
 24, *Alysson (Didineis) sibiricus nipponicus* subsp. nov.
 25, *Alysson (Alysson) cameroni* Yasumatsu et Masuda.

discoidal cell 1 on apical half slightly darker brownish, forming a rather obscure band, veins and stigma brown, the former posteriorly paler. Pile on frons and clypeus thick and short, considerably dense, on frons transversely, on clypeus longitudinally appressed, brassy in colour, but anteriorly faded into silvery; tomenta on latero-posterior areas of propodeum and of abdominal tergites 1 and 2 dense and silvery, pubescence on other portions of body dorsally somewhat yellowish and laterally white.

Head from above: Fig. 17, OOD : POD : OCD = 6 : 5 : 8.5, postocellus relatively 2.5. Head seen in front: Fig. 18, seen in profile with eye wider than temple. Antenna: Fig. 19, joint 1 markedly incrassate (Fig. 18), ultimate and penultimate joints similar in form to those of *lunicornis*. Pronotum: Fig. 20. Propodeum: Fig. 21. Abdominal tergite 1 (dorsal view): Fig. 22, with lateral margins sharply edged as in *Alysson* spp. and with some longitudinal striae on basal area. Caudal tergite: Fig. 23. Wing venation: Fig. 24 (cf. Fig. 25, that of *Alysson cameroni*). Legs normal, front tibia not dilated.

Punctures on frons fine and dense, on lower frons and clypeus unobservable owing to close hairs, vertex sparsely, very weakly punctured, on medio-posterior area practically impunctate and polished, punctures on pro- and mesonotum fine, somewhat sparser than on frons, the surface fairly shining, scutellum at base coarsely crenate, disc with punctures sparser and weaker, more shining than on mesonotum, mesopleuron simply finely closely punctate, not rugosely so, sculpture on area dorsalis: Fig. 21. Punctures on abdominal tergites fine and close, anteriorly slightly larger and posteriorly gradually smaller, on tergite 1 somewhat sparse, on 2 and 3 with averaged intervals as large as punctures, on subsequent tergites intervals larger, on end tergite punctures slightly larger than on preceding one and very close. Sternites with punctures slightly larger than on tergites, uniformly and slightly more sparsely distributed.

Holotype: ♂, Saitama Pref. (K[^]sosu), 6. IX. 1961, T. Nambu leg. (Coll. Tsuneki).

4. Notes on *Oxybelus lewisi* Cameron, with a description of the male

Oxybelus lewisi Cameron, Mem. Manchester Lit. Phil. Soc., (4) 3: 282, 1890 (*Nugata*, Ceylon).

Oxybelus lewisi: Bingham, Faun. Brit. Ind., Hym., I: 320, 1897 (reproduced).

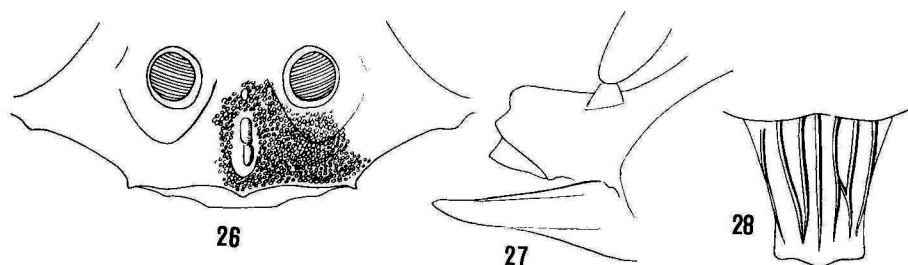
Oxybelus lewisi: Yasumatsu, Trans. Sapporo Nat. Hist. Soc., 14 (1): 38, 1935 (keyed and listed).

Oxybelus sakuranus Tsuneki, Etizenia, 16: 7, 1967 (SYN. NOV.).

Oxybelus sakuranus: Tano, Life Study, 11 (3-4): 51, 1967 (new locality).

Specimens examined: 4 ♂♂, Formosa, leg. K. Tsuneki et T. Tano; 3 ♀♀ 11 ♂♂, Ishikawa Pref. (Terai), 14. VII. 1967, T. Tano leg.

Remarks. Having been carried away by the original description telling that metanotum



Figs. 26-28. *Oxybelus lewisi* Cameron, ♂.

26, Clypeus seen in front, 27, Clypeus, mandible and base of antenna seen in profile, 28, Seventh tergite of abdomen.

without squamae and the spine at the base of median segment stout and acute, I considered the specimen of *sakuranus* as distinct from *lewisi* Cameron. Recent discovery of several specimens of *sakuranus* in Formosa led me to the reexamination of the literature and to the conclusion that *sakuranus* should be identified with *lewisi*, taking into account that the squamae is short, nearly transparent and easily overlooked.

This was further confirmed by the facts that abundant material was most recently collected by Mr. T. Tano in Ishikawa Pref., the coastal area of the Japan Sea, and that *Nugata* in the original description is presumed to be read as *Niigata*, also the coastal area of the Japan Sea, not far from Ishikawa Pref.

Some additions and corrections in the description on the colour of *sakuranus* which was made with a female specimen soaked in alcohol are attempted through fresh specimens.

♀. Antennal joint 1 in front narrowly yellow, with an accompanied yellow spot on latero-apical area. Flagellum beneath toward middle brownish, sometimes fairly distinct; sometimes the tip of the ultimate joint white. Tegulae transparent, carrying a yellow spot; base of fore wing which is concealed under tegula in the normal position of the wing is brown, with outer margin broadly yellow, subcosta of hind wing also yellow. Scutellum carrying two oblique maculae in two specimens out of the three (in the type of *sakuranus* wholly black, in the original description bimaculated). All the specimens carry five pairs of yellow maculae on abdomen. Yellow on legs: Apex of all femora, in front and mid legs broadly extended toward middle, outer side of all tibiae, in front and mid legs apically slightly brownish, and basal half of hind metatarsi. Front tarsi ferruginous, mid and rest of hind tarsi dark brown, both beneath ferruginous. Pygidial area black, tip only brownish. Mandibles not yellow, but ferruginous, at base and at apex dark brown.

In other portions as given on *sakuranus*.

♂. Hitherto undescribed. Very similar in characters to ♀, excepting the sexual ones.

Clypeus: Fig. 26, seen in profile: Fig. 27, pygidial area: Fig. 28, very coarsely longitudinally striate, the striae densely covered with short hairs under normal condition.

Contour on vertex, the form of transparent squamae of postscutellum as in ♀, the form of propodeal mucro generally similar, but sometimes very obtuse. In front tarsi spines shorter, less strong. Variation in coloration and maculation:

Antenna. Usually flagellum beneath toward middle ferruginous, sometimes dark brown and less distinct, apex of ultimate joint always white, though more or less varied in extension.

Pronotum. Out of 11 specimens 10 carry two maculae, while one immaculated.

Scutellum. All without the macula.

Postscutellum. In 5 specimens wholly yellow, in 6 with two spots, varied in development, in 1 very small, rather vestigial.

Abdomen. 3 specimens with six pairs of maculae, 1 with five pairs and a half, 1 with five pairs, 1 with four pairs and a half, 1 with three pairs and a half, 3 with three pairs, and 1 with two pairs and a half. Tergites 1 and 2 always bimaculated, maculae on tergite 5 most frequently disappear and those on 4 next frequently so.

Acknowledgement

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