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ON SOME ACULEATE HYMENOPTERA OF JAPAN

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ON SOME ACULEATE HYMENOPTERA OF JAPAN

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I. NOTES ON NYSSON OF JAPAN

(1) *Nysson spinosus malaisei* Gussakovskij conj. nov.

Nysson malaisei Gussakovskij, Ark. Zool., 24 A No. 10, p. 31, 1933.

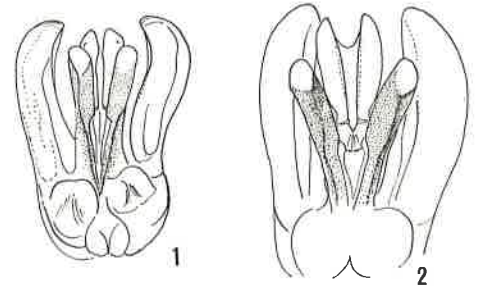
Nysson malaisei: Yasumatsu, Trans. Sapporo N. H. Soc., XV, Pt. 3, p. 195, 1938; ——— Icon. Ins. Jap., II, p. 1469, 1950.

Nysson malaisei Guss., 1933 was sunk to a subspecies of *N. spinosus* (Förster, 1771). It differs from the nominate race only in the following points :

(1) Body on an average slightly larger. (2) Antennal joints relatively slightly longer. (3) Legs more darker. (Black; knees of all legs, apex of each tarsal joint of front and mid legs and hind tarsi largely reddish ferruginous.)

The close relationships between the two forms were already admitted by Gussakovskij, but he split them at the specific level. Despite his allusion I could not find difference in the relative thickness of apical portion of the antennae in the male. Moreover, the genital organ of the male is also practically identical (Fig. 1, nominate race; Fig. 2, race *malaisei*).

Specimens examined: 2♀♀ 6♂♂, Hokkaido (Jozankei) and Honshu (Towada, Mt. Haku and Somayama ··· Fukui Pref.).



Figs. 1-2. Male genitalia of *Nysson spinosus* (Förster)

(1) *N. s. spinosus*. (2) *N. s. malaisei* Guss.

(2) *Nysson trimaculatus japonicus* subsp. nov.

Nysson trimaculatus: Yasumatsu, Trans. Sapporo N. H. Soc., XV, Pt. 3, p. 196, 1938.

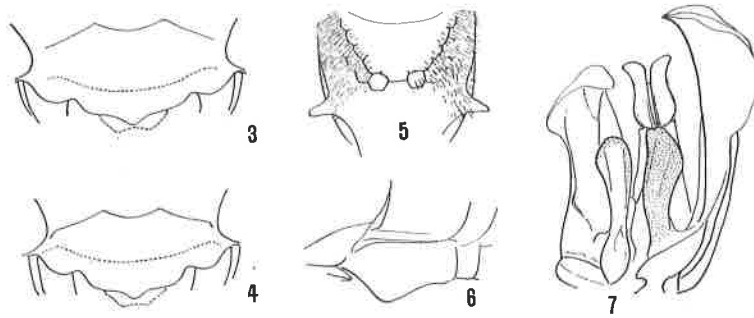
The new subspecies occurring in Japan differs from the nominate race in the following points:

(1) Clypeus on anterior margin in middle provided with a small obtuse tooth (Figs. 3, ♀ and 4, ♂). (2) Lateral spines on propodeum much more developed (Fig. 5). (3) The protuberance of 2nd sternite in the lateral view slightly more obtuse (Fig. 6). (4) The wings slightly clearer hyaline, marginal clouding indistinct.

Maculae similar to those of the typical race. In the specimens examined maculae on thorax are limited to pronotum only (sometimes a band, sometimes 3 spots, sometimes lacking in ♀; in ♂ mostly lacking). Punctures on vertex and frons close, cribrate with very minute points on intervallic carinae, on mesonotum and mesopleuron punctures slightly sparser with intervals carrying larger number of minute points. The punctures on vertex and frons rounded, flattened on bottom, on mesonotum mostly angulate and roundly concave on bottom. Length similar. Male genitalia: Fig. 7.

Holotype: ♂, Mt. Haku, 15. III. 1956, K. Tsuneki leg.

Paratypes: 1 ♀, Mt. Haku, 20. III. 1956, K. Tsuneki leg.; 13 ♀♀ 17 ♂♂, Hokkaido (Kamioboro), Honshu (Mt. Haku and its foot, Nikko, Towada and Ikarigaseki).



Figs. 3-7. *Nysson trimaculatus japonicus* subsp. nov. (3, ♀; 4, ♂) Clypeus. (5) Lateral spines of propodeum (♀). (6) 2nd sternite (♀, lateral view). (7) Male genitalia.

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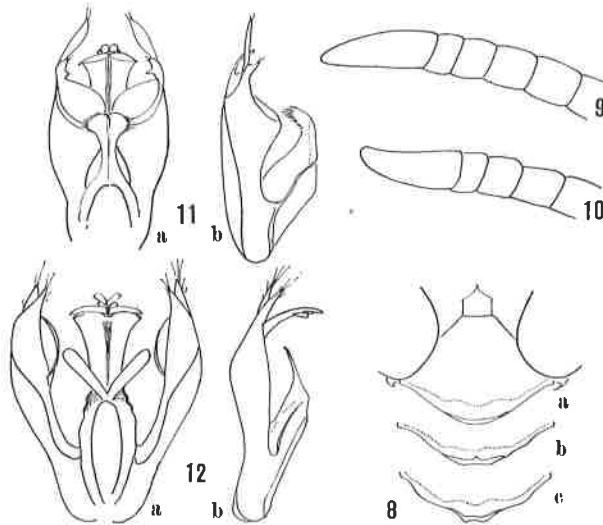
II. ON TWO NEW SPECIES OF *TRYPOXYLON* FROM THE ISLAND OF AMAMI-OHSHIMA, THE RYUKYUS

A. *Trypoxylon amamiense* sp. nov.

♀. Very similar in external characters including those of clypeus, antennae, interocular space, radial cell and vestigial 2nd cubital cell of forewing, sculpture of propodeum and general punctuation and coloration to *Trypoxylon malaisei* Guss., ♀, but slightly different from this in that the structure of frons less depressed, with medial furrow finer and shallower, interantennal tubercle somewhat nose-form and provided with a longer carina on top which is usually attaining half of the distance to anterior ocellus, but sometimes its upper half not fully developed. Sometimes difference is observed in the form of the clypeus (Fig. 8), vestigial 2nd cubital cell and somewhat in the length of the forewing radial cell. Length 13.5-15.0 mm.

♂. Also very similar to *malaisei* ♂, but the ultimate joint of antenna not bent (Fig. 9, cf. Fig. 10). In the genital organ basal plates and the apical structure of squamae are characteristic of the species (Fig. 11, cf. Fig. 12). Length 10.0 mm.

Holotype: ♂. Akaogi, 7. VII.



Figs. 8-12. (8, 9, 11) *Trypoxylon amamiense* sp. nov. (10, 12) *T. malaisei* Guss. (8) Clypeus (♀; a, usual form; b, c, variation). (9, 10) Antenna of ♂. (11, 12) Male genitalia (a, ventral view; b, lateral view).

1961, K. Tsuneki leg.

Paratypes: 1 ♂, Yuwan, 30. VI. 1961; 3 ♀♀, Nishinakama (Santarô-tôge), 26. VI. 1961; 1 ♀, Asari, 25. VI. 1961; 1 ♀, Kachiura, 3. VII. 1961 (K. Tsuneki leg.); 1 ♀, Shimmura, 20. VII. 1955. (T. Shirôzu leg.).

(1) Relationships to *T. malaisei* Guss., 1933

Until I examined the male genital organ I thought that the specimens of this species represent at most a geographical race of *T. malaisei*; so closely they are related to each other. The difference in the external characters shown between them is admitted, as given above, only in the structure of the frons. Apparently there is no question as to the subspecific relationships between them. But the structure of the male genitalia clearly indicates that they are by no means the closest congeners and that *amamiense* is rather a close kindred of *T. obsenaotr* Smith, a species widely distributed over southern to eastern regions of Asia.

(2) Relationships to *T. formosicola* Str. and *inornatus* Mats. et Uch.

On the other hand, two species that seem closely related to the present species have been known from Formosa and Okinawa, one from each area. The former is *T. formosicola* Strand and the latter *T. inornatus* Matsumura et Uchida. So far as the descriptions* go no difference worthy of special mention can be discovered among the females of the three species, namely *formosicola*, *inornatus* and *amamiense*. As to the relationships between the first two Yasumatsu (1938) published his opinion that they must be one and the same species. However, I am inclined to reserve to determine the synonymic relation between them, since the male of *inornatus* remains unknown and the male alone sometimes has a key to settle the synonymic problem in this genus, as has just been shown between *malaisei* and *amamiense* and as will be given below as regards *amamiense* and *formosicola*. The last mentioned two species appear to be a synonymy with respect to the female, but they are distinctly different at least in the structure of the ultimate antennal joint in the male. It is "reichlich so lang wie die beiden vorhergehenden Glieder zusammen" in *formosicola*, while in *amamiense* it is as long as three preceding joints taken together. As to the relation between *inornatus* and *amamiense* there is a certain degree of probability that they may bear a synonymic relationships. But as above stated, as to the former species not only the detailed characters of the female are unknown, but also the male has not been captured, and, moreover, the two species occur respectively on the separate islands. I, therefore, reserve to give any conclusion until the male of *inornatus* reaches our hands. If evidence is given as to the synonymic relation between *inornatus* and *amamiense* in future, it becomes that *formosicola* and *inornatus* belong to a different species respectively.

(3) Variation within *amamiense*

The female specimens collected at Santarô-tôge differ considerably in characters from the typical form of *amamiense* captured in the lowland areas which is much closer to *T. malaisei* in the general external morphology. They are different in the form of the clypeus (Fig. 10, medianly not produced), in the slightly shorter radial cell**, in the somewhat otherwise formed

* The description of *inornatus* is quite incomplete, only referring to the punctuation on the thorax and the presence of the triangle area on the propodeum. As to the character of the radial cell of forewing no mention was made in both species. The description of *formosicola* is detailed only as to the character of the first abdominal segment.

** The lengthened radial cell of forewing is characteristic of the group of *malaisei*. It reaches nearly the apex of the forewing. In the specimens in question it is slightly shorter, ending with its apex somewhat more apart from the apical extremity of the wing.

vestigial 2nd cubital cell of forewing*, in the much longer medial carina on top of the interantennal tubercle, and more or less in the sculpture on the posterior portion of the propodeum (slightly coarser). So different characters of both the forms as well as their sympatric occurrence led me at first to suspect that they might belong to a distinct species respectively. However, by considering as follows the sympatric problem was solved and I placed them under the same specific category:

The specimens in question were captured at a small puddle on the summit of the mountain pass (namely, Santarô-tôge) when they came successively to take mud probably for their nests. They therefore must live near the area and judging from their restricted range of flight they are presumed to be isolated from the lowland population. The result may be the development of the varied characters within the habitat of their colony. In the strict sense, therefore, they may be deserved of a subspecific form. To my regret, however, no male specimen, and the final determining clue accordingly, could be obtained. But that the two forms occur on the same island, and moreover, in the closest adjacent locations makes it more probable that they fall within the category of the same species, so that the form was allocated here within the range of *amamiense*.

B. *Trypoxylon dubiosum* sp. nov.

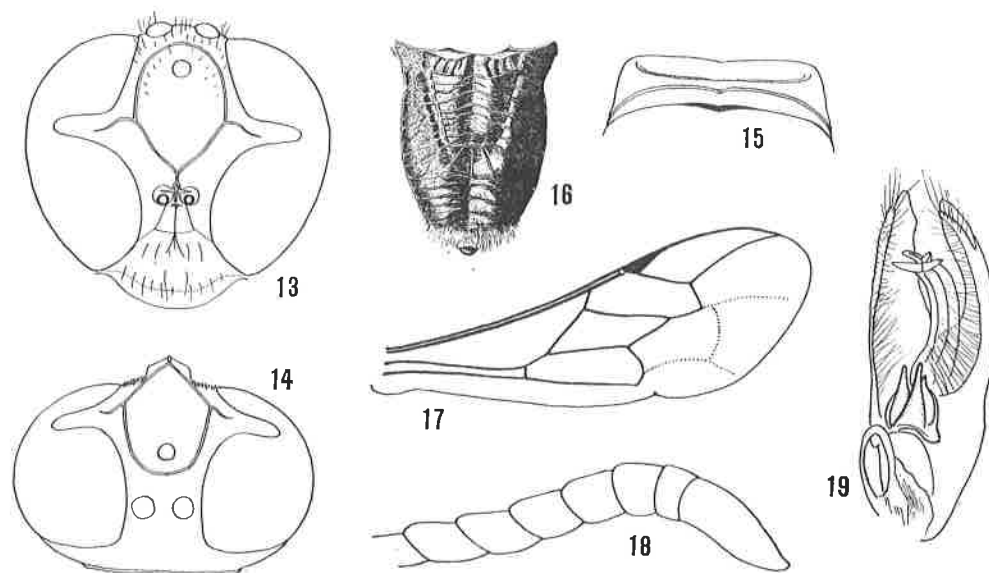
? *Trypoxylon pileatum subpileatum* Strand, Internat. Ent. Zeitschr., Jhg. 16, p. 163, 1922.

? *Trypoxylon chinense* Gussakovskij, Trav. Inst. Zool. Acad. Sci. URSS, T. 3, p. 648, 1936.

As to *subpileatum* no detailed description is given except the characters of the abdominal petiole, and as to *chinense* the details are restricted only to the characters of frontal shield and punctuation and sculpture of the propodeum. The specimens dealt with here differ from *subpileatum* at least in the relative length of the 1st abdominal segment, and from *pileatum* (and *subpileatum* accordingly) at least in the punctuation of the mesonotum and scutellum. With the description of *chinense* it fairly well agrees. But if his figure is strictly correct the present species differs from the species in the characters of interocular distance, postocellar location and antenno-ocular and interantennal distances.

♀. Length 8.5–12.3 mm, fore wing 4.6–5.8 mm. Black; palpi dark brown, apically paler, mandibles reddish brown, at base black, and a spot on each side on apical bevel of clypeus amber-yellow. Tibial spurs black. Wings hyaline, apically slightly clouded. Clypeus and lower face covered with short appressed silvery pubescence, on clypeus mixing longer one apically and scattered over the whole surface with long brownish hairs of which the upper four (arranged transversely) thicker, on supraclypeal area two similar but much thicker hairs at the centre and on the medial carina beneath internatennal elevation four similar and longer hairs subequidistantly arranged. Hairs on temples below, mesopleuron and propodeum posteriorly comparatively sparse, long and whitish, on thorax above dark brown to black and on postscutellum longer. Abdominal tergites 1–4 adorned with a silvery band of appressed hairs on each apical margin, medianly somewhat interrupted; sternites 2–5 each with three bristles on apical margin, sternite 6 scattered with similar hairs. Clypeus (Fig. 13) with apical bevel broad, as broad in middle as apical breadth of antennal joint 6, relative interocular distances at vertex and at base of clypeus 6 : 5, relative width of oculo-antennal space, socket of antenna and interantennal space 3 : 5 : 2; frontal shield: Fig. 13, inside the shield the surface inclined towards medial line, 3rd antennal joint 2.5 times as long as wide at apex, ultimate joint twice as long as penultimate joint. Head seen from above: Fig. 14, OOD : POD = 3–4 : 1, POD

* The vestigial second cubital cell has the apical transverse nervure more obtusely angled in the middle, thus the upper abscissa is relatively much longer than in *malaisei* and the typical form of *amamiense*.



Figs. 13-19. *Trypoxylon dubiosum* sp. nov.

(13, 14) Head, (15) Pronotum, (16) Propodeum, (17) Forewing, (♀), (18) Male antenna, (19) Male genitalia.

smaller than the postocellar diameter. Pronotum: Fig. 15; propodeum: Fig. 16; forewing venation: Fig. 17. Abdomen less than twice as long as head and thorax united, 1st segment 3.7 times as long as wide at apex, subequal to 2nd and 3rd put together, with upper face anterior to stigmatae flattened, slightly depressed; apical segment medianly distinctly thoroughly carinated. Frons and vertex very minutely coriaceous (under 30 times enlargement), half-mat and sparsely scattered with fine hair points, occiput with closer fine points, but without ground minute sculpture. Pro-, mesonotum, mesopleuron and scutellum smooth but not glossy, with sparse fine points. Sculpture on propodeum: Fig. 16, sides of the segment largely impunctate and polished, on posterior region coarsely striate, the striation extending along the dorsal and ventral carinae anteriorly, dorso-anterior region punctate-striate. Punctuation on abdomen normal.

♂. Length 8.0-9.2 mm. Very similar to ♀. But the tibial spurs brownish; clypeus with median region of the rounded anterior margin again slightly roundly produced; antennal joint 3 approximately 1.5 times as long as wide at apex, ultimate joint subequal to three preceding joints united (Fig. 18). Punctuation on thorax coarser and closer, with surface somewhat glittering; sculpture on propodeum slightly coarser. But the general pattern of punctuation and sculpture as in ♀. The 1st abdominal segment slightly less than as long as two following segments combined. Genitalia: Fig. 19.

Holotype: ♂, Shimmura, 27. VI. 1961, K. Tsuneki leg.

Paratypes: 2 ♂♂, Shimmura (27. VI.), Gusuku (1. VII.), 1 ♀, Naze (24. VI.), 2 ♀♀, Shimmura (27. VI.), 51 ♀♀ (Shimmura, Yuwan, Akaogi, Gusuku, Kachiura, Kominato, Naze, Kasari), K. Tsuneki leg.; 1 ♀, Naze, 28. VII. 1956, T. Shirozu leg.

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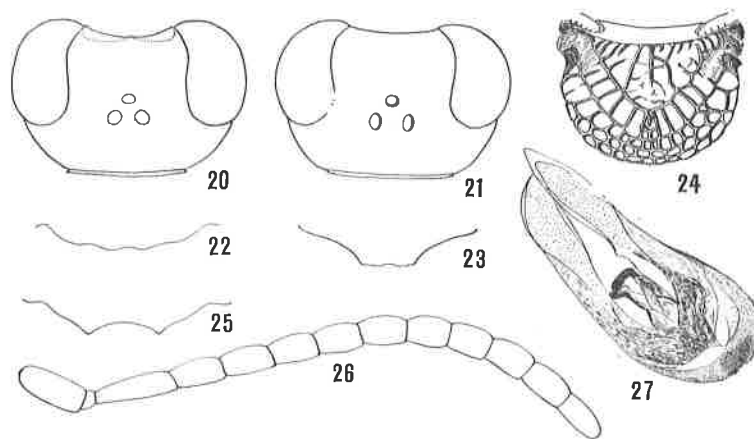
Yasumatuu, K. 1938. Beiträge zur Synonymie einiger Hymenopteren-Arten von den Ryukyu Inseln (Vespoidea, Sphecoidea und Apoidea). Trans. Nat. Hist. Soc. Formosa, Vol. 28, No. 183, pp. 445-447. (In Japanese)

III. *STIGMUS* (*STIGMUS*) *SHIROZUI* SP. NOV. FROM THE ISLAND OF AMAMI-OHSHIMA

♂. Length 3.2 mm. Very closely resembles *Stigmus convergens* m., but as it differs from this species in some important characters it was considered to represent a new species.

Coloration: Black with no ivory white portion (in *convergens* greater part of mandibles and humeral angles ivory white); mandibles, antennae (apically darker), humeral angles posteriorly, tegulae, front and middle legs except middle of femora and hind legs except greater part of femora and tibiae, glossy ferruginous, semitransparent; remaining portions of legs and veins and stigma of fore wings dark brown, glossy.

Structure: Very similar in general to *convergens*, but distinguishable therefrom by the following differences: Head seen from above somewhat more strongly convergent posteriorly behind eyes, with anterior margin more markedly roundly emarginate (Fig. 20, cf. Fig. 21), with ocelli located relatively more anteriorly (posterior margin of postocelli situated slightly before the supposed line connecting the posterior margins of eyes, in the compared species the line runs across the middle of postocelli), with occipital carina stronger. Antennal joints (from above) relatively shorter, joint 3 approximately 2.2 times as long as wide at apex (in *convergens* about 2.5 times as long as wide). Clypeus less strongly produced anteriorly and fairly markedly different in form (Fig. 22, cf. 23). Petiole of abdomen relatively shorter and thicker, slightly less than as long as hind femur and slightly less than 3 times as long as wide at apex (in *convergens* amply as long as hind femur and more than 3 times as long as wide at apex; in form it is also somewhat different).



Figs. 20-27. (20, 22, 24) *Stigmus shirozui* sp. nov. (♂). (21, 23) *S. convergens* Ts. (♂). (25-27) *Psen (Psen) richardsi* Ts. (♂). (20, 21) Head. (22, 23, 25) Clypeus. (24) Propodeum. (26) Antenna. (27) Male genitalia.

Pilosity: Clypeus without pubescence. This is by no means due to denudation of the hairs,

since the surface carries scattered fine punctures instead of the close fine hair-points. The form of the clypeus itself is also male like. This is certainly a curious exception to the genus. I have, however, known similar exceptional instances (but which occur in females) with regard to three species at least, namely *inordinatus* Fox, *aphidiperda* Rohwer of North America and *verhoeffi* Tsuneki of Central Europe, in which the female has the clypeus covered with silvery pubescence as in the usual case of the male. As regards the last species, however, some entomologists considered it to be a gynandromorph of *pendulus* Panzer. It may be so in this case, since the structure also approximates to that of the male. But it seems to me too hasty to connect the state of the clypeal pubescence directly with the gynandromorph before examining ample material of the concerned species. I can not say whether the specimen before me is an abnormal one or not. If it is abnormal, it becomes that the character of the female appeared upon a male with respect to the surface condition of the clypeus only. At any rate to determine the problem more material is especially needed.

Sculpture: Mesopleuron posteriorly and on the area below the wing tegula very finely longitudinally striate. Scuto-scutellar suture more coarsely crenate than in *convergens* (foveoles 7 in number, in *convergens* about 16-17). Sculpture on propodeum somewhat more regular, especially so on the circum-cordiform areas (Fig. 24). Petiole above finely longitudinally striate, without any strong longitudinal carinae (in *convergens* with two somewhat strong ones).

Holotype: ♂. Amami-Oshima (Simmura-Akatsuchiyama), 21. VII. 1955, T. Shirozu leg. (In the writer's collection.)

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IV. THE MALE OF *PSEN (PSEN) RICHARDSI* TSUNEKI, 1959

♂. Length 6.5-8.3 mm. Very similar to ♀ in the coloration of the body, especially in the ferruginous antennae and legs, and in the glossy abdomen and legs. But the hairs on lower frons and clypeus silvery, instead of golden. Punctuation and sculpture as in ♀. On vertex ratio of OOD : POD approximately 7 : 8, on frons oculo-antennal-, interantennal distance and diameter of antennal socket subequal to one another, clypeus not raised at apex in middle, but gently convex, with apex roundly emarginate (Fig. 25), mandibles markedly narrow, when folded greater part concealed beneath clypeus, apex bidentate. Antenna somewhat moniliform (Fig. 26), without tubercle nor carina on any joint. Legs without modification. Punctures on scutellum and postscutellum sparse as in ♀, the reticulate sculpture on propodeum varied in density, generally as in ♀. Sternites with apical fringe of long fine hairs on each, but generally sparse, only on 3rd closed into a tuft line, usually glued to form several thick hair bundles. Genitalia: Fig. 27.

Specimens examined: 4 ♂♂, Mt. Haku, 30. VII. 1960, K. Tsuneki and H. Okuno leg.; 1 ♂, Mt. Haku, 2. VIII. 1960, T. Tano leg.; 1 ♂, Mt. Shirouma, 10. VII. 1960, H. Okuno leg.

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