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A REVISION OF THE GENUS *GLYPTOSTICHA*
MASI, WITH DESCRIPTIONS OF A NEW
GENUS AND A NEW SPECIES
(HYMENOPTERA : PTEROMALIDAE)

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In 1926 the genus *Glyptosticha* was erected by Masi for the reception of two Formosan species, *Glyptosticha flavipes* Masi and *G. nigricans* Masi. Recently I have had the opportunity to examine types of these species through the kindness of Prof. Dr. H. Sachtleben. After my own careful examination I have come to the conclusion that *G. nigricans* should be transferred to another genus which is new to science. Moreover, in the course of the present study I have found a new species of *Glyptosticha* occurring in Japan, which will be described herein after.

I wish to express my sincere appreciation to Prof. Emeritus T. Uchida and Prof. C. Watanabe for their valuable advice and encouragement. I am also indebted to Prof. Dr. H. Sachtleben, Deutsches Entomologisches Institut, Berlin, for his kindness in lending Masi's type material.

Genus *Glyptosticha* Masi

Glyptosticha Masi, 1926, Konowia 5: 348.

Clypeus weakly emarginate at apex, edentate, with tentorial pits hardly visible. Genae buccate. Antennae inserted below middle of face but above ventral edges of eyes, with thirteen segments (11263). Flagellum of male with short hairs; club of female normal, with first and second segments oblique at apex, and that of male with each segment distinctly separated. Occiput not margined.

Pronotum seen from above with sides roundly narrowed posteriorly, widest at middle, with collar distinctly margined. Prosternum with median sulcus absent or present. Prepectus with a median shield behind fore coxae, marked off by a transcostate furrow, and with a sharply delimited triangular area before tegulae. Notaulices complete, costate; scutellum with distinct frenal furrow in the normal position; area along anterior margin of scutellum strongly depressed and longitudinally costate. Upper epimeron* not divided by a diagonal furrow; episternum with an arched depression above. Propodeum elongate, distinctly produced beyond insertions of hind coxae; spiracles separated from posterior

* Regarding to the terminology used for the mesopleuron, I follow Ferrière: Les Familles des Chalcidoidea (Hymenoptera). Proc. Tenth Intern. Congr. Ent. I: 271-273, 1958.

margin of metanotum by their own diameter. Speculum of fore wing reduced; postmarginal vein nearly as long as submarginal; upper surface of costal cell of hind wing bare.

Gaster of female sunken dorsally; petiolar segment strongly transverse; first tergite medially excised at apex; ovipositor sheath short. Gaster of male compressed; petiolar segment quadrate; first tergite not excised at apex.

Type species: *Glyptosticha flavipes* Masi.

This genus is related to *Trigonoderus* Westwood, from which it may be distinguished by the following characters:—clypeus emarginate at apex, upper epimeron not divided by a diagonal furrow, club of male with each segment distinctly separated, episternum with an arched depression above, propodeum distinctly produced beyond insertions of hind coxae, pronotum roundly narrowed posteriorly seen from above, costal cell of hind wing bare above. *Glyptosticha* is also allied to *Plutothrix* Förster, from which it differs by the edentate clypeus, the reduced speculum of the fore wing, the episternum with an arched depression above and the elongate propodeum. It is also distinguishable in the shape of the pronotum and the structure of the male antennae.

Key to the species

♀♀

- 1. Antennal scrobe almost lacking; prosternum without median sulcus; gaster much longer than head plus thorax, about 1.5:1; propodeum elongate, markedly produced beyond insertions of hind coxae, with a median longitudinal depression rather shallow, not costate; club with tuft of micropilosity restricted to third segment; femora brownish yellow. *flavipes* Masi.
- Antennal scrobe of moderate depth; prosternum with median sulcus; gaster a little longer than head plus thorax, about 1.2:1; propodeum less elongate but distinctly produced beyond insertions of hind coxae, with a median longitudinal depression deep, strongly costate; club with tuft of micropilosity extending to second segment; femora blackish in greater part. *sulcata*, sp. nov.

♂♂

- 1. Antennal scrobe and prosternum agreeing with key of female. Head in front view rounded, eyes separated by 1.2 times their own length. *flavipes* Masi.
- Antennal scrobe and prosternum agreeing with key of female. Head in front view transverse, eyes separated by 1.3-1.5 times their own length. *sulcata*, sp. nov.

***Glyptosticha flavipes* Masi**

Glyptosticha flavipes Masi, 1926, Konowia 5: 349.

Specimens examined: 1 ♀, 1 ♂ (syntypes of *G. flavipes*), Taihorin, Formosa, V. 1910, 1911, H. Sauter.

Distribution: Formosa.

***Glyptosticha sulcata*, sp. nov.**

Female. Length including ovipositor sheath 8 mm. Head seen from above transverse,

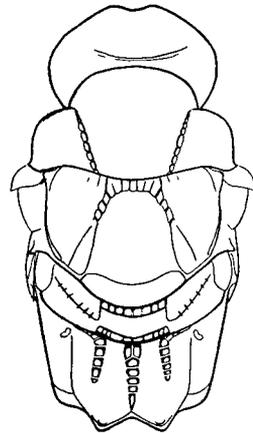


Fig. 1. *Glyptosticha sulcata*, sp. nov. Female: dorsal view of thorax.

much wider than thorax; occiput rather deeply emarginate; temples rounded off behind eyes. Vertex slightly convex, almost smooth, with posterior area and occiput wrinkled; postocellar line shorter than ocellocular line (10:14). Eyes bare, 1.4 times as long as wide, separated by 1.3 times their own length, with inner orbits parallel. Malar space one-fourth length of eye. Head seen in front 1.4 times as wide as high, with genae strongly buccate; face reticulate, covered with white, dense hairs; clypeus smooth. Right mandible with four teeth and the left with three. Distance between centres of antennal toruli 1.6 to 1.8 times as long as distance between one of them and adjacent eye. Antennal scrobe of moderate depth; scape reaching median ocellus, as long as first funicle segment and half of the second combined; pedicel one-third to one-fourth length of first funicle segment; flagellum as long as thorax; first funicle segment four times as long as wide; seventh short, two-thirds to half length of first, less than twice as long as wide; club much shorter than two preceding segments combined; tuft of micropilosity narrow, extending to the second segment. Sensillae irregularly disposed in four or five rows upon each funicle segment.

Thorax twice as long as wide. Pronotum 2.4 times as wide as long, with anterior flange weakly emarginate at middle. Mid lobe of mesoscutum coarsely reticulate posteriorly, finely so anteriorly; lateral lobes transversely rugulose. Scutellum reticulate as in anterior area of mid lobe of mesoscutum; frenum finely reticulate. Median piece of metanotum nearly smooth. Propodeum 0.7 times as long as distance between inner edges of propodeal spiracles, deeply emarginate at apex, feebly and reticulately sculptured, polished, with a deep median depression extending from anterior margin to posterior and costate; median carina visible anteriorly in the depression; longitudinal fovea between median carina and propodeal spiracle costate, sometimes extending three-fourths way of propodeum. Prosternum with median sulcus indistinct. Upper epimeron polished, episternum and lower epimeron acciculate. Fore and mid femora fairly swollen. Wings slightly infusate. Fore wing: basal cell hairy throughout; speculum almost reduced; upper surface of costal cell with a row of hairs in distal half, the row becoming double distally, relative lengths of $sm:m:p:s$ as 86:38:79:12; stigmal vein straight, emitted at about 45° .

Gaster a little longer than head and thorax combined, about 1.2:1, sunken dorsally. Petiole strongly transverse; sixth tergite 2.3 times as long as seventh. Ovipositor sheath shorter than half length of seventh tergite.

Black: scape dark brown basally, dorsum of thorax bronzy to dark green, lateral area of thorax with a feeble violet tinge, first tergite and lateral area of gaster with a greenish tinge, sixth and seventh tergites with a violet tinge, ventral area of gaster brownish yellow basally. Tegulae and legs brownish yellow: coxae and femora nearly concolorous with thorax in greater part.

Male. Length 3.4–5.6 mm. Eyes separated by 1.3–1.5 times their own length. Distance between centres of antennal toruli 1.2–1.4 times as long as distance between one of them and adjacent eye. Scape not reaching median ocellus, shorter than, sometimes two-thirds as long as, first funicle segment; flagellum twice as long as thorax; first funicle segment sometimes five times as long as wide; each segment of club equal in length; tuft of micropilosity absent. Sensillae on funicle segments numerous. Gaster compressed, much longer

than head and thorax combined; petiolar segment as long as median length of metanotum; first tergite not medially excised at apex.

Colour variable. In darker specimens antennae brownish black; coxae concolorous with thorax; femora and hind tibiae mainly dark brown; fore and mid tibiae and all tarsi dark yellow; gaster blackish, without greenish reflections. In lighter specimens scape brownish yellow, pedicel and flagellum darker; lateral and ventral parts of thorax and propodeum brownish, with greenish reflections. Legs and petiolar segment brownish yellow.

Holotype (♀): Kyushu, 11. VIII. 1955, K. Nohara. Paratypes (2 ♀♀, 33 ♂♂): 4 ♂♂, Apodake, Hokkaido, 22. VI. 1959, K. Kamijo; 2 ♂♂, Sapporo, Hokkaido, 17. VI. 1957, 12. VI. 1960, K. Kamijo; 1 ♀, Nikko, Honshu, 14. IX. 1957, S. Momoi; 1 ♂, Wakayama Pref., Honshu, 8. X. 1957, S. Momoi; 1 ♀, Kochi Pref., Shikoku, 28. X. 1934, H. Okamoto (gaster missing); 1 ♂, Matsuyama, Shikoku, 18. IX. 1958, K. Kamijo; 25 ♂♂, Hikosan, Kyushu, 18.-21. V. 1959, K. Kamijo. The holotype is deposited in the collection of the Entomological Institute, Hokkaido University.

Distribution: Japan (Hokkaido; Honshu; Shikoku; Kyushu).

Trigonoderoides, gen. nov.

Anterior margin of clypeus with a tooth at middle; tentorial pits hardly visible; genae buccate in anterior view; eyes with inner orbits weakly divergent below. Antennae inserted much below middle of face but slightly above ventral edges of eyes, with thirteen segments (11263); club with first and second segments strongly oblique at apex. Occiput not margined.

Thorax strongly convex in lateral aspect. Pronotum seen from above with sides roundly narrowed posteriorly, widest at middle, with collar sharply margined; prosternum without median sulcus. Prepectus with a median shield behind fore coxae, marked off by a transcostate furrow, and with a sharply delimited triangular area before tegulae. Notaulices complete, costate; scutellum with frenal furrow distinct in the normal position; area along anterior margin of scutellum strongly depressed and longitudinally costate. Upper epimeron divided by a diagonal furrow. Propodeum transversely and strongly depressed in anterior area, with a longitudinal median sulcus behind the depression; propodeal spiracles separated by less than their own diameter from posterior margin of metanotum. Speculum of fore wing reduced; hind wing with costal cell bare in basal half.

Gaster sunken dorsally; petiolar segment strongly transverse; first tergite medially excised at apex.

Type species: *Glyptosticha nigricans* Masi.

Trigonoderoides resembles *Glyptosticha* Masi in general appearance, especially in the shape of the pronotum and the sculpture of the dorsum of the mesonotum. In the new genus, however, the clypeus is dentate at apex and the upper epimeron divided by a diagonal furrow. In regard to these characters, *Trigonoderoides* is closely allied to *Trigonoderus* Westwood, from which it differs by the bare costal cell of the hind wing, the shape of the pronotum and the sculpture of the scutellum and the propodeum. It may be distinguished from *Plutothrix* Förster by the prosternum without median sulcus, the upper epimeron

divided by a diagonal furrow and the incomplete speculum of the fore wing.

Trigonoderoides nigricans (Masi)

Glyptosticha nigricans Masi, 1926, Konowia 5: 353.

Female. Length including ovipositor sheath 9.6 mm. Head much wider than thorax (69:57), with occiput moderately emarginate; temples rounded off behind eyes. Vertex weakly convex, feebly sculptured; postocellar line a little shorter than ocellular line (9:11). Eyes prominent, bare, 1.4 times as long as wide, separated by 1.3 times their own length. Malar space about two-fifths length of eye. Head seen in front 1.3 times as wide as high; clypeus with a median tooth on anterior margin. Distance between centres of antennal toruli short, half as long as distance between one of them and adjacent eye. Face covered with rather short, dense hairs. Antennal scrobe shallow; scape slender, reaching median ocellus, as long as first and second funicle segments combined; pedicel twice as long as wide, one-third length of first funicle segment. Flagellum as long as thorax; first funicle segment four times as long as wide; sixth shorter than first (16:23), 2.6 times as long as wide; club about as long as first funicle segment, tuft of micropilosity narrow, extending to the second segment. Sensillae short and numerous, irregularly arranged.

Thorax 1.8 times as long as wide. Mesoscutum 1.5 times as wide as long, with hind margin gently sinuate; mid lobe narrow, 1.3 times as long as wide, coarsely reticulate; lateral lobes rugose, with foveae along hind margin. Scutellum reticulate as in mid lobe of mesoscutum; frenum finely reticulate. Propodeum not produced beyond insertions of hind coxae, about half as long as distance between inner edges of propodeal spiracles, deeply emarginate at apex; anterior one-third area of propodeum transversely and strongly depressed, with weak median carina; posterior area smooth and polished, with a longitudinal median sulcus. Triangular area of prepectus sculptured; its upper margin about as long as tegula. Upper epimeron smooth and polished; episternum and lower epimeron finely reticulate. Fore and mid femora strongly swollen. Wings slightly infusate. Fore wing: basal cell hairy throughout; upper surface of costal cell with a row of hairs anteriorly, which becomes triple distally; relative lengths of sm:m:p:s as 82:31:58:11; stigmal vein straight, emitted at about 45°. Upper surface of costal cell of hind wing bare in basal half.

Gaster much longer than head and thorax combined (10:7), compressed laterally, sunken dorsally; petiole transverse, 3.5 times as wide as long; first tergite with hind margin deeply incised at middle; sixth tergite 2.5 times as long as seventh, which is slightly shorter than the ovipositor sheath.

Blackish, with metallic reflections: gaster with greenish reflections dorsally, especially on first tergite, brownish ventrally. Legs dark brown: hind coxae concolorous with thorax; femora much darker, with metallic reflections; tarsi lighter.

Specimens examined: 1 ♀ (syntype of *G. nigricans*), Hoozan, Formosa, 7. IX. 1910, H. Sauter.

Distribution: Formosa.

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NOMENCLATURE OF A SCALE INSECT. In my previous paper (Ins. Mats. 25: 50, 1962) I discussed a scale insect under the name *Lepidosaphes foliicola* Borchsenius, but I am much inclined to the opinion, that the following name should be used as the valid name of this species.

***Lepidosaphes cupressi* Borchsenius**

Lepidosaphes cupressi Borchsenius, Acta Ent. Sin. 8: 169, 1958.

Lepidosaphes foliicola Borchsenius, Ent. Obozr. 40: 252, 1961 (pro *Lepidosaphes cupressi* Borchsenius, 1958, nec Coleman, 1903, N. Y. Ent. Soc. Jour. 11: 71), **syn. nov.**

Lepidosaphes foliicola Borchsenius: Takagi, Ins. Mats. 25: 50, 1962.

In 1961 Borchsenius rejected the name *Lepidosaphes cupressi* Borchsenius, 1958, as a junior secondary homonym of *Leucaspis cupressi* Coleman, 1903, giving the new name *Lepidosaphes foliicola*. So far as I am aware, *Leucaspis cupressi* Coleman is not a member of the genus *Lepidosaphes* Shimer, but belongs truly to the genus *Lineaspis* MacGillivray as Ferris already treated in 1937. Accordingly, acting upon the International Code of Zoological Nomenclature, Article 59 (c), the name ***Lepidosaphes cupressi* Borchsenius** should be restored as the valid name for the present species. SADAO TAKAGI

DISCOVERY OF DUPLASPIDIOTUS CLAVIGER IN JAPAN. *Duplaspidotus* MacGillivray is a tropical genus, of which no species has been known to occur in our country. On this occasion the opportunity is taken of giving Japan as a new locality of the following species.

***Duplaspidotus claviger* (Cockerell)**

Pseudaonidia clavigera Cockerell, The Entomologist 34: 226, 1901.

Pseudaonidia iota Green & Laing, Bull. Ent. Res. 14: 127, 1921.

Duplaspidotus claviger: MacGillivray, The Coccidae: 453, 1921.

Duplaspidotus claviger: Balachowsky, Ann. Mus. R. Congo Belge, Sci. Zool., N. S. in-4°, 4: 258, 1958.

This scale insect was originally described from material collected at the Botanical Garden at Durban, Natal, Africa, as a feeder of *Camellia*, and later recorded from the Seychelles on *Eugenia caryophyllata* (after Green & Laing, 1921). I have collected some specimens of this species in south Kyusyu (Miyazaki; Kagosima), Japan, on *Viburnum* sp. and *Thea sinensis* (V, 1957). Reading the recent authentic redescription of *Duplaspidotus claviger* given by Balachowsky (1958), I believe that the examined specimens are correctly identified with that species: among the members of the genus *D. claviger* is well characterized by having two pairs of robust paraphyses terminating in a detached knob, three pairs of pygidial lobes and perivulvar pores divided into three groups, of which the median one is represented by a shallow arch. It is probable that the present species may be widely distributed in tropical areas between Africa and Japan. SADAO TAKAGI