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DISCOVERY OF TWO NEW SPECIES OF *SCELIO* LATREILLE,
EGG-PARASITES OF
THE RICE GRASSHOPPERS, IN JAPAN*
(Hymenoptera, Scelionidae)

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Recently a large number of Scelionid specimens bred from egg-pods of the rice grasshoppers, *Oxya velox* FABRICIUS and *Oxya japonica* WILLEMSE, were forwarded me by Mr. S. MURAI of the Yamagata University and Mr. K. KIGASAWA of the Hokuriku Agricultural Experiment Station for determination. My own careful examinations have convinced me that these specimens may be classified into two species of the genus *Scelio* LATREILLE (1805), both of which will be described as new species herein after. The types dealt with in this paper are deposited in the collection of the Entomological Institute, Hokkaido University, Sapporo.

On this occasion I have to thank very much to Messrs. S. MURAI, K. KIGASAWA and T. SUGAHARA for their kindness in collecting the valuable material. Last but not least my sincere acknowledgment must be expressed to Mr. C. E. PEMBERTON of the Experiment Station of the Hawaiian Sugar Planters' Association, Honolulu, Hawaii, for his kind gift of authentic representatives of *Scelio pembedtoni* TIMBERLAKE.

Scelio muraii sp. nov.

♀. Black; mandibles, legs including coxae and basal half of scape reddish yellow; hind tibiae somewhat brownish and the tarsi fuscous; tergite dark brown. Wings smoky; fore wing with a longitudinal hyaline streak just below middle; veins dark brown.

Head transverse, as broad as thorax and foveately punctate; lower part of frons between eye and antennal insertion with some short carinae converging toward mouth; a smooth area just above antennal insertion reaching about half way to anterior ocellus; ocellar region of vertex rather coarsely punctate, without an impunctate transverse space. Lateral ocelli oval and apparently separated from eye margin. Antennae (Fig. 1, A) 12-jointed; scape reaching nearly to anterior ocellus; pedicel about thrice as long as broad at apex. Flagellum narrowly fusiform; 1st joint a little longer than pedicel and thrice as

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long as apical width; 2nd as long as broad at apex; 3rd to 9th shorter than apical width, the 6th being distinctly transverse; 10th longer than thick and conically pointed.

Frontal surface of pronotum rather minutely and densely punctate; dorsal surface of pronotum foveately punctate; mesoscutum and scutellum foveately punctate like head; parapsidal furrows absent; scutellum unarmed; median swelling of metanotum finely and densely rugose. Pro-, meso- and metapleurae rather closely punctate. Propodeum coarsely rugose with dense white pubescence on each side, with about six longitudinal carinae at base. Stigmal vein (Fig. 1, C) slender, finely defined and not round at apex. Legs rather slender.

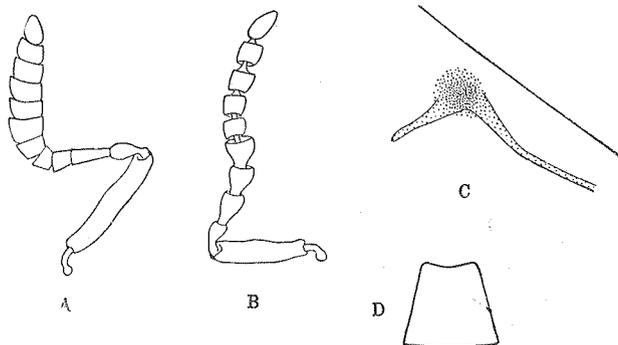


Fig. 1. *Scelio muraii* sp. nov.

- A. Antenna (♀). B. Antenna (♂).
 C. Stigmal vein (♀). D. First tergite (♀).

Abdomen fusiform; 1st tergite (Fig. 1, D) subquadrate, a little longer than broad at base (25 : 22), and about as long as one and half apical width (25 : 36); 3rd tergite longest; 4th a little shorter than 3rd; 2nd or 5th five-sevenths as long as 3rd; 1st to 5th longitudinally striate, the 1st and basal half of 2nd being punctate; tergites with a smooth transverse stripe on apical margin, especially that of 2nd and 3rd being evident; 2nd rather distinctly impressed on basal half; 6th distinctly transverse and coarsely reticulate; apex of abdomen pointed.

Length 4 mm.

♂. Similar to the female in general structure, sculpture and color, but differs from the latter in the following features:—

Antennae (Fig. 1, B) 10-jointed; scape shorter than in female, reaching nearly about two-thirds of distance to anterior ocellus; pedicel about twice as long as thick and thickest a little before apex; 1st joint of flagellum nearly twice as long as thick and a little longer than pedicel; 2nd as long as thick and thicker than 1st; 3rd thickest, but not so thickened as preceding joints; 9th about twice as long as thick and pointed conically at apex. Abdomen more

slender than in female, being round at apex; 6th tergite longitudinally striate like 5th.

Length 4 mm.

Holotype (♀), Allotype (♂) and Paratypes (50 ♀♀ & 50 ♂♂), VIII-IX, 1954, Tsuruoka, Yamagata-ken, S. MURAI and T. SUGAHARA leg. Paratypes (20 ♀♀ & 5 ♂♂), VIII, 1954, Takada, Niigata-ken, K. KIGASAWA leg.

Hosts: *Oxya velox* FABRICIUS and *Oxya japonica* WILLEMSE.

This parasite hibernates probably in the larval stage in egg-pods of the hosts, and then the adult is present in the field from the middle of August to the end of September at the time the grasshoppers are ovipositing.

Judging from the literature this species seems to come nearest *Scelio oxyae* TIMBERLAKE (1932), an egg-parasite of *Oxya* in India, differing therefrom in the coloration of the scape and pedicel, and in the sculpture of the vertex and mesoscutum. And yet the description of *oxyae* is too incomplete to allow me to give further definite differences between these species.

It is a real pleasure to state here that this interesting species is named after Mr. MURAI who discovered it for the first time.

Scelio tsuruokensis sp. nov.

♀. Black; mandibles and scape reddish yellow, the apex of the latter being fuscous; legs yellow; hind tarsi fuscous; tegulae reddish brown. Wings smoky; fore wing with a longitudinal hyaline streak just below middle; veins dark brown to black, being darker than in *muraii*.

Head transverse, as broad as thorax and foveately punctate like *muraii*; lower part of frons between eye and antennal insertion with some short carinae converging toward mouth; a smooth area just above antennal insertion reaching about half way to anterior ocellus; vertex entirely punctate without an impunctate transverse space at the ocellar region; lateral ocelli oval and apparently separated from eye margin. Antennae (Fig. 2, A) like those of *muraii*, with no special difference between two.

Pronotum foveately punctate except the frontal surface which is minutely and densely punctate; mesoscutum and scutellum foveately punctate like head; parapsidal furrows wanting; scutellum armed with a projecting small tooth on each side; median swelling of metanotum densely rugose. Propodeum coarsely rugose, with about six longitudinal carinae at base; sides of propodeum with dense white pubescence. Pro-, meso- and metapleurae rather closely punctate. Stigmal vein (Fig. 2, C) stout, sharply defined and slightly round at apex.

Abdomen very similar to that of *muraii* in shape and sculpture except as follows:— 1st tergite (Fig. 2, D) transverse, distinctly shorter than broad at base (15 : 23) and about two and half times broader at apex than long (37 : 15); 2nd hardly impressed on basal half; a smooth transverse stripe on apical margin of 2nd and 3rd tergites triangularly inclined at middle.

Length 4 mm.

♂. Agrees with my description of the female except as follows:—

Antennae (Fig. 2, B) 10-jointed; scape shorter than in female, reaching nearly about two-thirds of distance to anterior ocellus; pedicel about twice as long as thick; 1st joint of flagellum slender, not so thickened as that of *muraii*, twice as long as thick, and longer than pedicel; 2nd distinctly thickened and as long as thick; 3rd thickest, conspicuously enlarged, a little longer than thick and one and half times as long as 2nd; 4th to 7th subquadrate, being not so distinctly thickened as preceding joints; 8th about twice as long as thick and conically pointed at apex. Abdomen round at apex; 6th tergite longitudinally striate like 5th.

Length 4 mm.

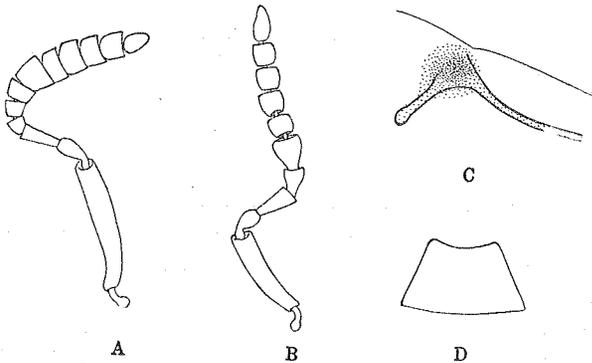


Fig. 2. *Scelio tsuruokensis* sp. nov.

- A. Antenna (♀). B. Antenna (♂).
 C. Stigmal vein (♀). D. First tergite (♀).

Holotype (♀), Allotype (♂) and Paratypes (30 ♀♀ & 13 ♂♂) VIII-IX, 1954, Tsuruoka, Yamagata-ken, S. MURAI and T. SUGAHARA leg. Paratypes (8 ♀♀ & 1 ♂) VIII-IX, 1953, Tsuruoka, Yamagata-ken, S. MURAI and T. SUGAHARA leg.

Hosts: *Oxya velox* FABRICIUS and *Oxya japonica* WILLEMSE.

The seasonal history of this species seems to be similar to that of *muraii*.

This species is closely allied to *Scelio pambertoni* TIMBERLAKE (1932) which is an egg-parasite of *Oxya chinensis* (THUNBERG) in Malay and was introduced to the Hawaiian Islands for the biological control of the grasshopper in 1930. Through the courtesy of Mr. PEMBERTON I have had the opportunity to examine two authentic representatives (1 ♂ & 1 ♀) of *S. pambertoni*. After careful examinations through the literature and those representatives I have convinced that the present species may be distinguishable from that species by the following aspects:— In both sexes the vertex entirely punctate, without an impunctate transverse space; parapsidal furrows absent; wings distinctly smoky, the veins being darker than those of *pambertoni*; and stigmal vein somewhat round at apex. In female the scape reddish yellow and only fuscous at extreme apex. In male the 3rd joint of flagellum conspicuously enlarged.

In conclusion, the two Japanese species seem to be quite similar at first sight, but may be immediately distinguishable each other by the following key; besides, it must be emphasized that the shape of the 1st tergite is of the most importance for distinction.

Key to two Japanese species of *Scelio*

In both sexes the 1st tergite subquabrate, being a little longer than broad at base; scutellum unarmed; legs reddish yellow; veins dark brown; stigmal vein slender, finely defined and not round at apex; 2nd tergite hardly impressed on basal half. In male the 1st joint of flagellum thickened, being twice as long as thick; 3rd joint greatest but not conspicuously enlarged. In female the basal half of scape reddish yellow, and the rest fuscous. *muraii* sp. nov.

In both sexes the 1st tergite transverse, being distinctly shorter than broad at base; scutellum armed; legs yellow; veins darker, almost black; stigmal vein stout, sharply defined and round at apex; 2nd tergite distinctly impressed on basal half. In male the 1st joint of flagellum slender, not distinctly thickened; 3rd joint conspicuously enlarged. In female the scape reddish yellow and only fuscous at extreme apex. *tsuruokensis* sp. nov.

It should be noted that among all the material at hand the series forwarded by MURAI in 1953 includes 8 females and 1 male of *tsuruokensis* and 3 females of *muraii*, while the other series in 1954 is composed of 461 females and 169 males of *muraii* and 64 females and 14 males of *tsuruokensis*; on the other hand the series (42 ♀ & 8 ♂) by KIGASAWA in 1954 is represented by *muraii* alone. Furthermore, *S. muraii* and *S. tsuruokensis* are so closely related to *S. oxyae* and *S. pembertonii* respectively as stated in the preceding paragraphs that further investigations are, of course, necessary to ascertain their more definite taxonomic relationships.

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