

Studies on the Japanese Trechinae (IV)
(Coleoptera, Harpalidae)

By

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In the last year, the writer described an interesting cavernicolous group of the subfamily Trechinae under the name of *Pseudotrechiana*, which was placed by him among the grand genus *Trechus*.¹⁾ Just afterwards, he received from Prof. R. JEANNEL of the Muséum national d'Histoire naturelle of Paris one of his recent papers entitled: "Sur les *Trechini* cavernicoles du Japon", appeared in Notes Biospéologiques, 3, 1953, pp. 127-130. In this paper Prof. JEANNEL endeavoured to arrange the Japanese cavernicolous Trechids into phylogenetic groups and erected *Trechiana* not only to generic rank but to the representative of an independent phyletic series. He was also kind enough to inform the writer that *Pseudotrechiana* should be transferred to the subgenus of *Trechiana*. As all the material hitherto discovered supports this JEANNEL's view, the writer follows his opinion in the present paper.

Through the courtesy of Mr. Kenzô KOSUGE of Fukuchiyama High School, the writer was recently able to examine an interesting endogean Trechid which was found in a valley near Maizuru. This species is characterized by the absence of setiferous dorsal pores on the third elytral stria so that it resembles *Pseudotrechiana* in this point. It is, however, otherwise quite dissimilar to the known species of the latter subgenus; the body (especially elytra) is of elongate form and not of wide convex form; the elytral striae are superficial and hardly said 'deep'; the copulatory pieces of aedeagus are not developed except a group of large teeth, while a large copulatory piece is present in the typical species of *Pseudotrechiana*. Concerning these features, it resembles several species of the subgenus *Trechiana* (s. str.).

In this summer, the writer explored the caves in Okayama Prefecture and obtained many cavernicolous Trechids, among which was found an example that was closely allied to the Maizuru specimens. This discovery has confirmed the peculiarity of the endogean species, which will be described below together with the cave species of Okayama Prefecture. For the present, the writer has conveniently treated these two species as the members of the subgenus *Pseudotrechiana*.

1) *Pseudotrechiana* S. UÉNO, 1954, Mem. Coll. Sci. Univ. Kyoto, (B), 21 (1), p. 31; type-species: *Trechus habei* S. UÉNO, 1954.

However, by reason of the presence of distinctive features as described above, it would be required in future a revision regarding the relationship between them, when many species of *Trechiana* would be brought to light.

Before going further, the writer wishes to express his hearty thanks to Prof. Kenji NAKAMURA for his kind guidance, to Prof. René JEANNEL for his kind advice, as well as to Messrs. Kenzō KOSUGE and Kohei SAKAGUTI for their kind aid in supplying valuable specimens.

***Trechiana (Pseudotrechiana) oni* S. UÉNO, sp. nov.**

Length: 5.6 mm (from front margin of clypeus to anal end).

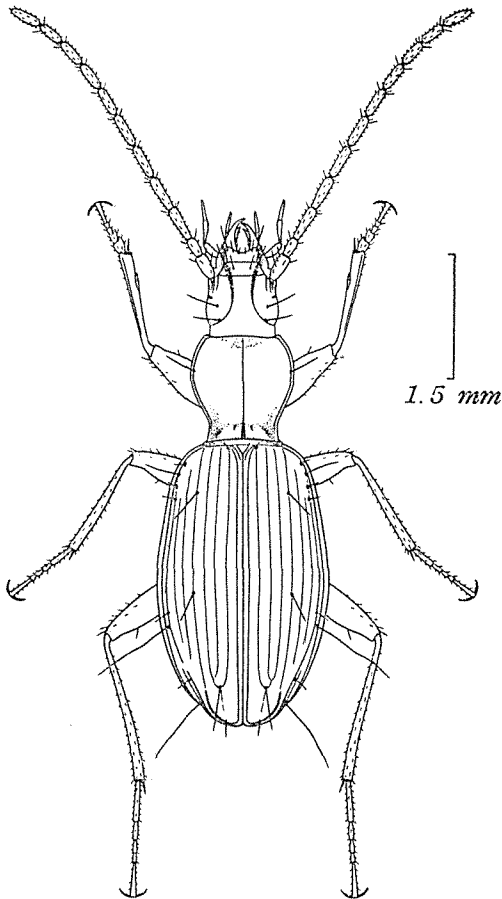


Fig. 1. *Trechiana (Pseudotrechiana) oni* sp. nov., ♂, of Oni-no-ana Cave.

Apterous. Body elongate and glabrous; depigmented. Colour reddish brown, shiny, translucent when alive, but weakly iridescent; palpi pale; legs (especially tarsi) and apical segments of antennae somewhat paler than the body.

Head quadrate, with deep entire frontal furrows which are not angulate at middle; surface moderately convex, microsculpture formed by well marked reticulation; eyes not faceted, though the trace of them present on each side just behind the insertion of antenna; genae slightly convex and glabrous; mandibles slender and slightly hooked at apices; mentum tooth simple and stout; palpi slender; antennae long, nearly reaching apical one-third of elytra.

Pronotum cordate and convex, fully 1.4 times wider than head, almost as wide as long, widest at about five-eighths from base; lateral sides narrowly bordered and reflexed, the border becoming very narrow near front angle, widely and moderately rounded in front, deeply sinuate at about one-sixth from base; one lateral seta present

at the widest part, postangular seta absent; apex widely and very slightly emarginate, about as wide as base, which is slightly bisinuate, front angles hardly advanced, hind angles sharp and projecting both outwards and backwards; median line clear, reaching apex and widening near base; front transverse impression indistinct; basal transverse impression shallow and wide, with a large pore on each side of median line, merging on each side into large and deep basal fovea, apical part of which becomes shallower and extends anteriorly parallel with the side-border; an obtuse carina present between the extension of basal fovea and the side-gutter; surface impunctured, with vague transverse striations; microsculpture composed of fine transverse lines but rather indistinct.

Elytra oblong-oval, convex, about 1.65 times wider than pronotum, longer than wide in a same proportion, widest at a little before middle; shoulders effaced; lateral sides rather widely explanate and reflexed, gently rounded at middle and slightly emarginate before apices which are rounded; striae shallow, crenulate, distinct on the disk but rather faint on the sides (though entire); scutellar striole evident, apical striole deep and almost joining stria 5, apical carina salient; intervals flat and smooth; stria 3 without dorsal pores, preapical pore inserted on the meeting point of striae 2 and 3 and fairly distant from apex, stria 5 with two setiferous dorsal pores, located at about one-fifth and five-ninths from base respectively; microsculpture consisted of fine transverse lines but very indistinct.

Legs long; protibiae externally grooved.

Male genital organ well chitinized. Aedeagus short and robust, large and wide at base and middle, suddenly tapering near apex, which is prolonged, ventrally arcuate and with the pointed extremity in profile; in dorsal aspect, apical lamella curving to left side, moderately long and fairly wide even near rounded apex; ventral side nearly straight at middle; lateral sides of basal orifice deeply emarginate; sagittal aileron present but small. Inner sac armed with the groups of large teeth at the left and left dorsal sides inside the sac. Styles fairly wide, left style wider and a little longer than right style, each provided with four setae at apex.

Female unknown.

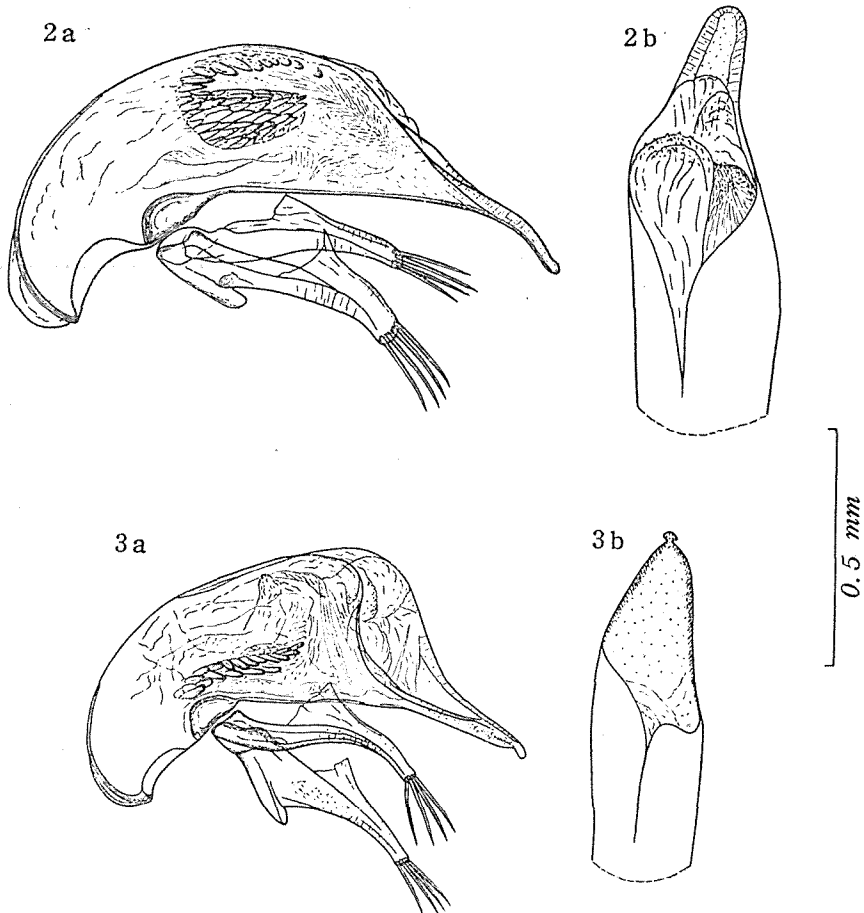
Holotype: ♂ (19-VIII-1955, collected by S. UENO and deposited in his collection).

Type-locality: A limestone cave called "Oni-no-ana", at Kôjiro, Katsuyama-chô, Okayama Pref., on the central massif of Chûgoku District, Honshu.

As mentioned already, this new species is greatly different from the other two described species of the subgenus, and the discrimination is quite easy, even if the male genital organ of these species could not be taken for comparison.

The limestone cave "Oni-no-ana" is located on the left side of the River Shinjôgawa, one of the branches of the River Asahigawa, and is open on the roadside at the lowermost part of a large outcrop of Palaeozoic limestone. There

are three openings of the cave. The southernmost one continues to the larger branches, which are called "On-oni-no-ana" or "Cave of Demon", where there are silty floors, gravels, a pool, bats' guano and so on. A passage entered from the northernmost opening is connected in the cave with the way from the middle aperture, which is open within several meters from the southernmost opening. These branches with two entrances are called "Men-oni-no-ana" or "Cave of Demoness". Men-oni-no-ana is smaller than On-oni-no-ana and the large part of its floor is dry. There is however a small area in these smaller branches, where there is wet and covered with fragments of rocks. A single type-specimen of the present new species was found at the wet area under a piece of limestone.



Figs. 2-3. Male genital organ, left lateral view (a), and apical part of aedeagus, dorsal aspect (b).—2. *Trechiama oni* sp. nov., of Oni-no-ana Cave.—3. *Trechiama kosugei* sp. nov., of Magura.

Besides the Trechid, some cave-animals were also obtained in Oni-no-ana Cave. They are: mollusks, diplopods, a chilopod, a symphylan, an opilionid, arachnids, a pseudoscorpion, springtails, a cave cricket and a fly.

A fungus belonging to the family Laboulbeniaceae was found on the elytra of the type-specimen of the Trechid. This may be the first record of such a fungus which attaches to the body surface of troglobiontic beetles of Japan.

Trechiana (Pseudotrechiana) kosugei S. UÉNO, sp. nov.

Length: 5.3 mm (from front margin of clypeus to anal end).

Similar to *T. oni* and almost corresponding to the description of the latter except the features noted below.

Elytra a little more iridescent and legs (especially femora) somewhat paler than those in *T. oni*.

Head with frontal furrows deeper and with front and supraorbital areas more prominent; microsculpture much finer and almost disappearing on the area between supraorbital pores; mentum tooth truncated and slightly emarginate at the tip, with deep median sulcus; antennae a little shorter and only reaching the middle of elytra.

Pronotum a little more transverse and widest more in front than that in *T. oni*; cordate and convex, about 1.4 times wider than head, a little wider than long (wider in ♀ than in ♂), widest at about two-thirds from base; lateral sides rather strongly rounded in front, sinuate at two-ninths from base, and with both lateral and postangular setae, the latter of which is inserted at a little before hind angle; in the holotype, an additional seta present on the disk at the right side of median line, but it is no doubt an abnormal case; front angles slightly advanced and narrowly rounded, hind angles sharp and projecting both outwards and backwards (though not so sharp and not so projecting as those in *T. oni*); median line deep and not reaching apex; front transverse impression shallow but distinct, with vague longitudinal striations.

Elytra wider than those in *T. oni*; oval and convex, 1.75 times wider than pronotum in the holotype, fully 1.65 times wider than pronotum in the allotype and the paratype, nearly 1.6 times longer than wide (a little shorter in ♀ than in ♂), widest at a little before middle; lateral sides a little less explanate and more regularly rounded (especially in ♀) than those in *T. oni*; apical striole joining or almost joining stria 7, but, on the right elytron in the holotype, this striole almost joining stria 5; apical carina less salient than that in *T. oni*; stria 5 with two setiferous dorsal pores, located at one-sixth to two-ninths from base and a little behind middle respectively.

Male genital organ remarkably different in shape from that of *T. oni*. Aedeagus shorter and robuster, dilated apically and rather strongly arcuate in basal part, with a sagittal aileron which is so much smaller and narrower than

that in *T. oni* that it is almost disappearing; ventral side nearly straight at middle and slightly concave before apex, which is straightly prolonged in profile (though shorter than that in *T. oni*) with the extreme tip slightly hooked; in dorsal aspect, apical lamella asymmetric and a little curving to left side, wide at proximal part, attenuated towards apex and with a tubercle at the apical end; apical orifice very large, much more widely open to left side than to right side. Inner sac armed with a group of large teeth at the left lateral side inside the sac. Styles rather narrow and moderately arcuate, left style longer than right one, each provided with four apical setae.

Holotype: ♂ (10-XII-1940, collected by K. KOSUGE); allotype: ♀ (23-XI-1940, by K. KOSUGE); paratype: 1 ♀ (16-IX-1941, by K. KOSUGE).

Type-locality: Magura, southern environs of Maizuru, Kyoto Pref., Honshu.

The holotype and the allotype are deposited in the writer's collection. The paratype is preserved in KOSUGE's collection. Another specimen, which is also preserved in KOSUGE's collection, was obtained by him on July 22nd, 1944, at the side of the River Yuragawa by Shinonoméwatashi, Kyoto Prefecture.

According to the collector, the Magura specimens of this new species were found under stones on the small pass in a valley. The Yuragawa specimen is said to have been obtained in vegetable deposit produced by inundation.