

A New Troglobiontic Trechid found in the Mines of Central Kyushu¹⁾

By

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In one of his fundamental works, Prof. JEANNEL²⁾ has noticed that artificial galleries carved in calcareous mountains are often inhabited by many troglobionts, who have reached there through interstices in the surrounding rocks, attracted by nourishment. A similar phenomenon was observed in Japan for the first time by the late Mr. Sigeru NOMURA, who found in the autumn of 1954 various species of troglobiontic animals in a old mine called "Tsuruoka-kô" in Saéki City. In the spring of the following year, on their way of a collecting trip in Kyushu, Prof. YOSII and the present writer had opportunities to visit several mines, both working and abandoned. Two of them, situated in the upper courses of the Kita-gawa River, were proved to be rich in cave animals, among which were found many individuals of a troglobiontic trechid. This species seems to belong to the group of *Rakantrechus* (*Paratrechiamia*) *kurosai*, but is different in many respects from the two described species of the group³⁾. It will be named in honour of Mr. ANDÔ, who kindly aided our investigations in the Kita-gawa drainage, and will be described in this paper.

The writer wishes to acknowledge his indebtedness to Prof. Kenji NAKAMURA for his encouragement; to Prof. Riozo YOSII for his kind collaboration at the field works; and to Dr. Kazuyoshi KUROSA, Mr. Takashi ANDÔ and the late Mr. Sigeru NOMURA for their kind aid rendered during the trip.

***Rakantrechus* (*Paratrechiamia*) *andoi* S. UÉNO, sp. nov.**

Length: 3.5-4.4 mm (from front margin of clypeus to anal end).

Colour reddish brown to dark reddish brown, more or less darker than in *R. kurosai*, very shiny and translucent when alive; palpi yellowish brown; antennae

1) Contribution No. 24 from the Spelaeological Society of Japan.

2) JEANNEL, R., 1926. Faune cavernicole de la France, avec une étude des conditions d'existence dans le domaine souterrain. Encycl. ent., Paris, 7. P. 12.

3) Cf. UÉNO, S., 1959. New cave trechids from the Gokasé-gawa drainage area of Kyushu. Mem. Coll. Sci. Univ. Kyoto, (B), 26, pp. 37-44.

becoming paler towards apices; elytra and apical sternites usually lighter than the rest of body; tarsi pale reddish brown.

Head quite similar to that of *R. kurosai*; mentum tooth usually simple, with the tip blunt, but rarely truncated at apex; antennae a little shorter and stouter

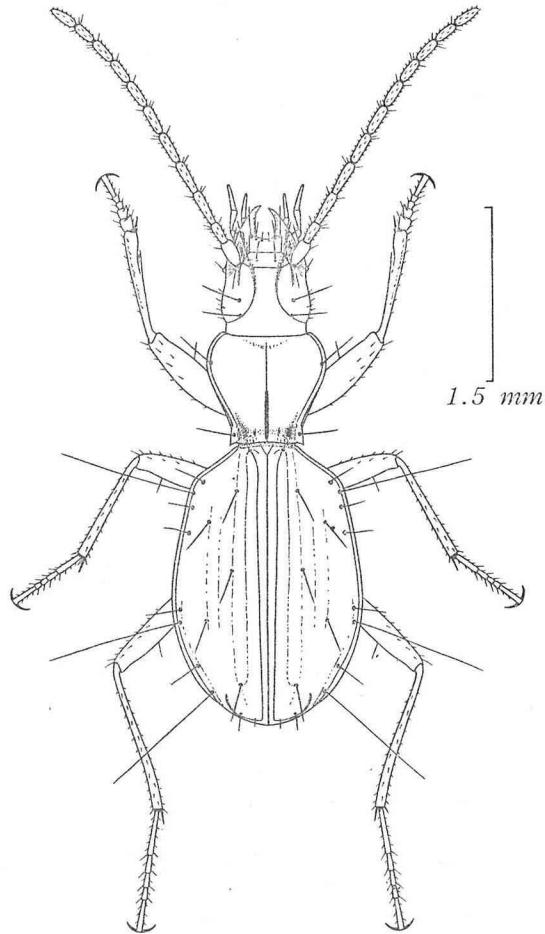


Fig. 1. *Rakantrechus (Paratrechiana) andoi* sp. nov., ♂, of Chūgiri-kō Mine.

than those in *R. kurosai*, reaching the middle of elytra in most of the specimens examined, but sometimes extending a little beyond the middle.

Pronotum cordate and convex, much more strongly contracted behind than that of *R. kurosai*, 1.26-1.34 times wider than head (mean 1.31), 1.05-1.14 times wider

than long (mean 1.09), widest at three-fourths to five-sevenths from base; the ratio of the greatest width to the width of apex ranging 1.33-1.41 (mean 1.36), that to the width of base 1.44-1.61 (mean 1.52); lateral sides narrowly explanate and reflexed, with marginal gutters somewhat wider than those in *R. kurosai*, rather strongly rounded in front and deeply sinuate at one-fifth to one-sixth from base; the position of postangular seta similar to that in *R. kurosai*; apex slightly but widely emarginate, 1.06-1.20 times wider than base (mean 1.12); base nearly straight or slightly produced backwards at the median part and distinctly emarginate on each side just inside hind angle; front angles a little more produced than those in *R. kurosai*; hind angles styliform and very acute, projecting well outwards and much backwards; median line deep, nearly reaching apex and widening near base; apical transverse impression shallow, vaguely wrinkled; basal transverse impression fairly wide and deep, with a distinct longitudinal fovea on each side of median line and merging on each side into deep basal fovea, which is rather small but extends anteriorly parallel with the side border; no postangular carina; surface smooth, microsculpture composed of fine transverse lines. The expansion of the ventro-lateral sides of prothorax slightly visible from above.

Elytra oval and well convex, much more strongly convex than those in *R. kurosai*, 1.60-1.73 times wider than pronotum (mean 1.66), 1.45-1.56 times longer than wide (mean 1.51), widest usually at a little behind middle but sometimes at about middle; shoulders prominent; prehumeral borders very oblique, nearly straight or slightly emarginate, much more oblique even than those in *R. kurosai lactarius*; lateral sides narrowly explanate and reflexed, nearly straight or slightly emarginate behind shoulders, then rather strongly rounded and slightly emarginate before apices; striae nearly obliterated excepting stria 1, which is fairly deep throughout, striae 2-3 more or less traceable especially on basal area, stria 8 obsolete even in apical part; scutellar striole vestigial, almost invisible in some individuals; apical striole short and rather shallow, but well curved, suddenly interrupted at the end, though apparently directed to the site of stria 5; intervals smooth and flat, excepting interval 1, which is raised especially in basal half; apical carina obtuse; stria 3 with two setiferous dorsal pores placed at one-seventh to one-sixth and two-fifths to four-ninths from base respectively, stria 5 also with two dorsal pores at one-fourth to three-tenths and four-sevenths to two-thirds from base respectively; preapical pore placed before the level of the termination of apical striole; the arrangement of humeral group of umbilicate pores similar to that in *R. kurosai*; microsculpture formed by fine transverse lines but rather indistinct.

Ventral surface glabrous and smooth; anal sternite with one seta in ♂, two in ♀ on each side. Legs long and slender, though somewhat stouter than those in *R. kurosai*; protibiae and tarsi similar in structure to those in *R. kurosai*.

Male genital organ moderately chitinized, not so small as that of *R. kurosai*. Aedeagus moderately arcuate and gradually attenuated towards apex behind middle; basal part not bending towards the ventral side, with a small sagittal aileron; lateral sides of basal orifice moderately emarginate; in profile, apical part narrowly

produced, with a blunt extremity; in dorsal aspect, apical part wide even near apex, which is rather widely rounded; ventral side deeply concave. Inner sac without developed copulatory piece but provided with three groups of large teeth; one of these three groups of large teeth is situated at middle of the left lateral side, while the other two are at the right lateral side and placed one behind another. Each style provided with four or five setae at apex.

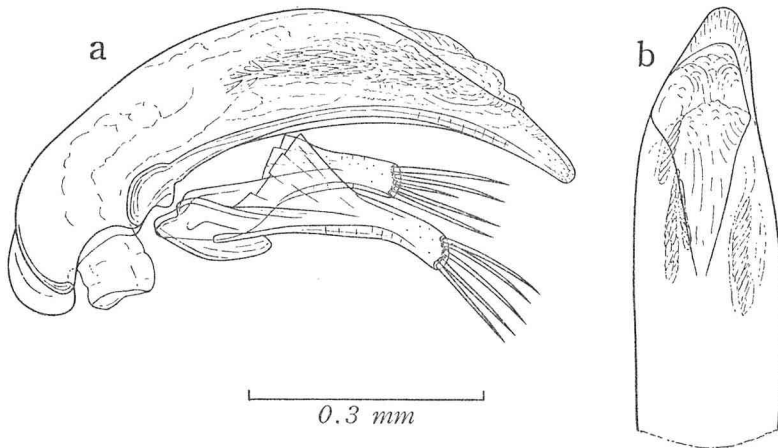


Fig. 2. Male genital organ of *Rakantrechus andoi* sp. nov., of Chûgiri-kô Mine; left lateral view (a), and apical part of aedeagus, dorsal aspect (b).

Type-specimens: Holotype: ♂, allotype: ♀ (Chûgiri-kô Mine, 27-III-1955, collected by S. UÉNO). Paratypes: 15 ♂♂, 5 ♀♀ (Chûgiri-kô Mine, 27-III-1955, by S. UÉNO and R. YOSHII); 9 ♂♂, 16 ♀♀ (Ôtani-kô Mine, 27-III-1955, by S. UÉNO and R. YOSHII); 1 ♂ (Ogoshi-dô Cave, 4-V-1958, by S. NOMURA).

All the type-specimens are preserved in the writer's collection.

Type-localities: Two mines called "Chûgiri-kô" and "Ôtani-kô", at Kiura-Kôzan, and a limestone cave called "Ogoshi-dô", on Mt. Tenjinbaru; all in Ono-ichi of Umé-mura, Ôita Prefecture, central Kyushu.

The present new species may easily be distinguished from *R. kurosai* by the shape of pronotum, which is much more strongly contracted behind, by the convexity of elytra, by the degeneration of elytral striae and by the different shape of aedeagus. From *R. constrictus*, it differs chiefly in the shape of pronotum, which is less transverse and much less contracted behind, with the hind angles much acuter and projecting both outwards and backwards.

The mines "Chûgiri-kô" and "Ôtani-kô" are situated at the northern foot of a calcareous mountain called "Tenjinbaru", in the upper courses of the Nakadaké-gawa that is a tributary of the Kita-gawa River. The position is about 15 km ENE

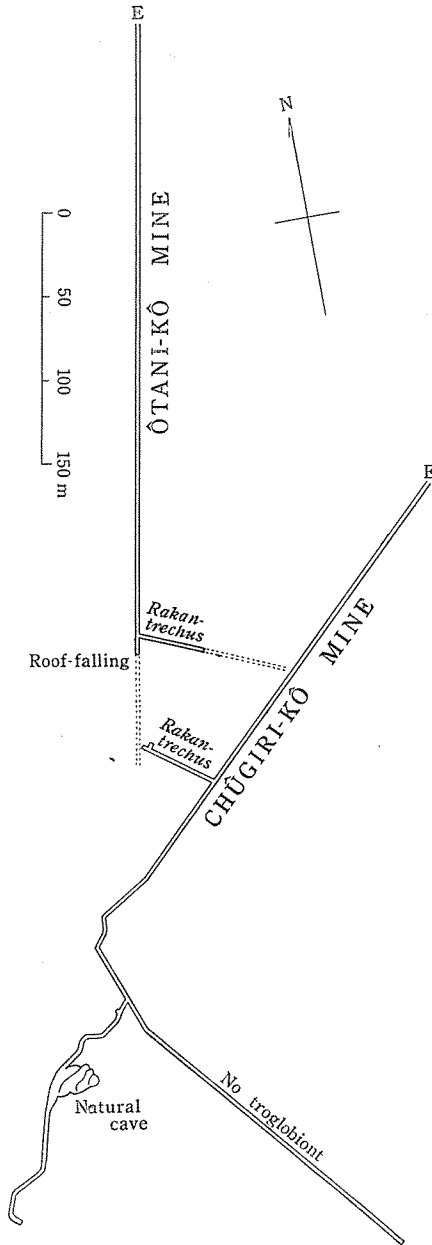


Fig. 3. Sketch map of Chūgiri-kō and Ōtani-kō Mines; E...entrance.

of Shirataki-dô Cave, the type-locality of *R. constrictus*. They are driven in the same side of a valley but on different levels, Chûgiri-kô being at a higher level than Ôtani-kô. The galleries of these mines are horizontally built into the mountain. The habitats of the trechid are, however, strictly localized in respective mines and are close each other as shown in the plan (Fig. 3), though there is a vertical gap between them. This fact seems to suggest that there may exist an undiscovered natural cave in between, from where the beetle and the other troglobionts have come to the tunnels of the mines through interstices of the limestone.

Chûgiri-kô Mine is operating at present, and a lot of decayed mine posts has been produced in the depth. The trechid was found in this mine under a pile of such decayed posts abandoned in a side way. On the other hand, Ôtani-kô Mine is abandoned its operation and is blocked by collapses at a half way of its extension. The beetle was taken under fragments of rocks along streams, which issued from under the collapses.

Ogoshi-dô Cave is a natural limestone cave and is about 2 km apart to the south from Chûgiri-kô Mine. Its entrance is situated on the southeastern side of Mt. Tenjinbaru, at about 780 m above the sea. This is a typically oligotrophic cave, being extremely poor in cave animals. The writer failed in taking any trechid on March 26th, 1955, when he himself investigated the cave. Only a single specimen known from this cave was obtained by the late Mr. NOMURA under a stone placed on the muddy floor.