

論 說

Mayflies From Japanese Torrents

I. New mayflies of the genera *Acentrella* and *Ameletus*. ★

by Kinji Imanishi

本邦産蜉蝣目の新種に就いて

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Acentrella japonica n. sp.

The nymph of this species already reported by Ueno¹ as "*Acentrella* (sp. nov. ?)." I have succeeded in obtaining the imagoes by breeding nymphs which were captured in the Hira-gawa, a feeder of Lake Biwa, together with such nymphs as *Epeorus* sp., *Baëtis* sp., *Ameletus montanus* n. sp., and *Ephemerella trispina* Ueno. That this species belongs to the genus *Acentrella* is certain on the basis of the nymphal characters but comparing with Bengtsson's original description of *Acentrella* adults², I must point out a remarkable difference of this species from his *A. lapponica*, viz., the absence of the hind wings. In this respect, this species seems to be nearer to *Cloëon* than to *Centroptilum*.³ This is the second species of this genus.

Measurements.

Length of	Male imago	Female imago	Male subimago	Female nymph
Body	4.5mm.	4.5	4.0	5.8
Forewings	6.3	7.0	5.5	
Setae	15.0	11.7	ca12.0	8.3

★ Contribution from the Entomological Laboratory of the Kyoto Imperial University, no. 11.

1. Ueno, M. 1928. Some Japanese Mayfly Nymphs. Mem. Coll. Sci. Kyoto Imp. Univ., Series B, vol. iv, no. 1, Art. 2, pp. 51-52.
2. Bengtsson, S. 1912. Neue Ephemeriden aus Schweden. Entom. Tidskr., 1912, pp. 110-111.
3. Bengtsson, S. 1914. Bemerkungen über die nordischen Arten der Gattung *Cloëon* Leach. Entom. Tidskr., 1914, pp. 230.

Description (specimens in alcohol).

Imago. ♂. General color pale yellowish. Turbinate eyes rufous, edged narrowly with pale yellow; lower eyes sepia-brown. Notum pale clay yellow. Forewings vitreous with a metallic lustre; pterostigmatic space somewhat obscured; longitudinal veins with a pale yellowish tint; a fuscous spot on the middle of cell Sc; humeral crossvein yellowish brown; other crossveins fuscous. Hindwings wanting. Legs light yellowish white; femora and tibiae of the fore legs brownish towards their extremities; tarsi and unguis smoky. Abdominal segments 1-6 white, slightly tinted with yellow. Stigma of segments 4-6 brownish. Dorsum of segments 7-10 yellowish brown, of which segment 7 darker, segment 10 lighter; venter paler. Forceps white; setae white.

♀. General color pale brownish. Eyes sepia brown. Wings vitreous; humeral crossvein yellowish; other veins fuscous. Legs white; femora brownish distally; tarsi sepia brown; fore tarsi about $\frac{2}{3}$ as long as the femora; unguis white. Abdomen brownish; joinings of segments 1-6 darker; segments 8-10 somewhat pruinose. Setae fuscous at the base, white distally.

Subimago. ♂. General color much paler than the imago. Wings light sepia grey. Legs semi-hyaline.

Holotype—♂; May 21, 1930; in the Hira-gawa (altitude 150m.), about 2 km. from Lake Biwa.

Allotype—♀; May 17, 1930; in the Kibune-gawa (altitude 450m.), north of Kyoto, City. Types in Entomological Laboratory, Goll. Agr., Kyoto. Imperial University, Japan.

This species dwells in the swiftest currents of clear mountain streams, and is, like Iron, one of the most adaptive species of mayfly nymphs among the stone fauna. In this respect Dodds' account⁴ is interesting in that *Baëtis bicaudatus* in the Colorado, is

4. Dodds, G. S. and F. L. Hisaw. 1924. Ecological Studies of Aquatic Insects. Ecology, vol. 5, p. 142, p. 266.

the most successful torrent-dwellers within the genus *Baetis* and has, similar to the species under consideration, only two setae.

Ameletus montanus n. sp.

This species seems to be nearest to the American species *Ameletus ludens* Needham.⁵ As I have not yet examined *A. ludens*, I hesitate to discriminate these two species by the male genital organ. But there are some distinct characters which distinguish this species from *A. ludens* as follows: ♀, subanal plate produced backward into a triangle in both winged stages. Subimago of both sexes: all crossveins bordered with a brownish tint. Nymph: pectinate hooks numbering twenty.

Measurements.

Length of	Male imago	Female imago	Female subimago	Male nymph
Body	9.0mm.	7.5	10.0	11.4
Forewings	9.0		10.5	
Hindwings	3.0		4.0	
Setae	12.5		8.0	4.5
Antennae				1.5

Description (specimens in alcohol).

Imago ♂. Head brownish; eyes ash grey; broad black bands along the inner sides of ocelli; antennae brownish. Thorax chestnut-brown; mesonotum light brownish with a subtriangular area of chestnut-brown on either side of the median elevations, a yellowish U-mark on its posterior crest; scutellum fuscous. Pleurae and coxal areas shaded with pale brown. Wings hyaline with a metallic lustre, brownish at the base; longitudinal veins with an amber tint; crossveinlets rather whitish; pterostigmatic portion semi-trans-

5. Needham, J. G. 1905. Mayflies and Midges of New York. N. Y. State Bull. 86, Entomol. 23. 36.

Morgan, Anna H. 1911. Mayflies of Fall Creek. Ann. Ent. Soc. Am., vol. 4, p. 117.

Needham, J. G. 1924. The Male of the parthenogenetic Mayfly, *Ameletus ludens*, Psyche, vol. 31, pp. 303-310.

lucent. Forelegs blackishbrown, lighter lines along upper of fore femora; hinder legs pale yellowish brown with somewhat smoky tarsi. Abdomen, above yellowish; side brownish; segments 2-6 semi-translucent; a pair of black spots on the distal edge of segment 10. Ventrally, segments 1-2 brownish, segment 1 darker; segments 3-10 light brownish, of which segments 3-6 semi-translucent, segments 7-10 opaque, pruinose. Forceps deep smoky at the base, paler apically. Setae pale yellowish brown with distinct brown joints. Median seta rudimentary.

♀. General color distinctly paler than ♂. Eyes smaller and distinct; a pair of longitudinal brownish lines on the vertex. Some crossveins on the primaries tinted light brown. Abdomen light reddish brown due to contained ova; paler beneath. Sternite 7 prolonged and covering nearly half the length of sternite 8. Sternite 9 produced backward into a triangle, slightly shorter than sternite 10, and its point truncated. Sternite 10 bilobed.

Subimago, ♀. Very similar to the imago, but crossveins bordered with a brownish tint; sternite 7 not prolonged; setae shorter than the body, much heavily covered with hairs.

Nymph. Similar to *A. velox* Dodds⁶ rather than to *A. ludens* Needham in regard to labium and hypopharynx; distinct from the above two allied species by the pectinate hooks which are twenty in number.

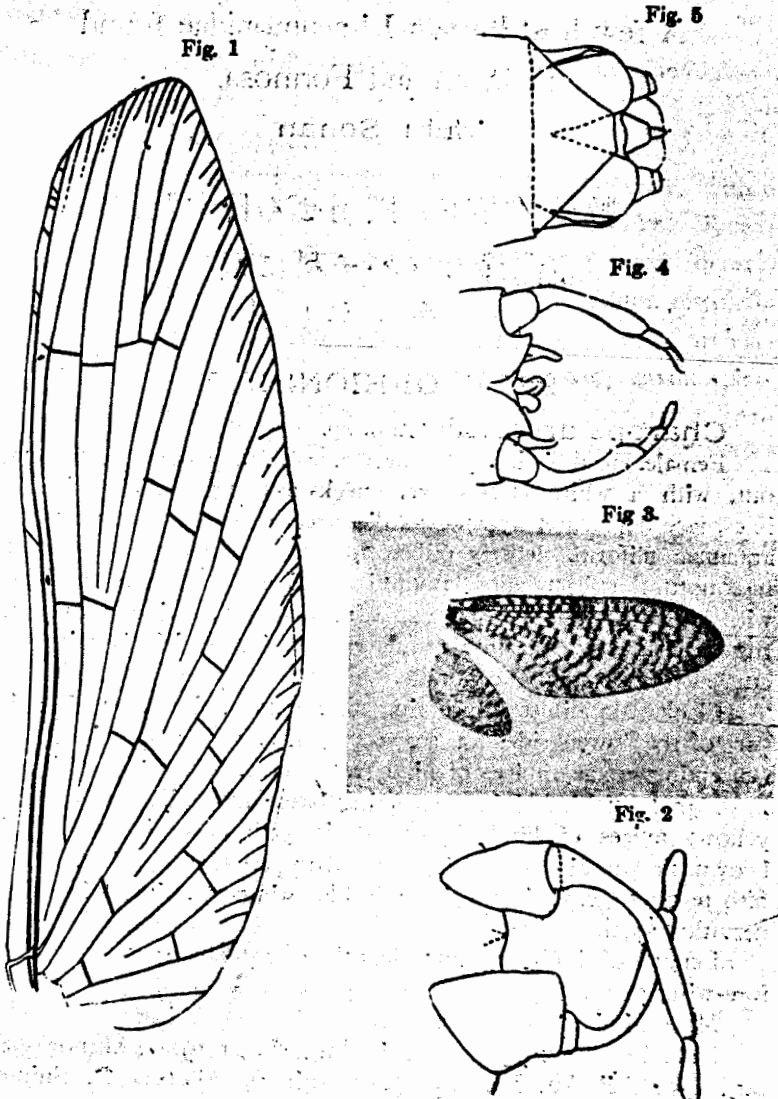
Holotype..... ♂,

Allotype ♀,

obtained by rearing nymphs captured in the Hira-gawa, above mentioned; emerged May 22-23, 1930. Types in Entomological Laboratory, Coll. Agr., Kyoto Imperial University, Japan.

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6. Dodds, G. S. 1923. Mayflies from Colorado. Trans. Am. Ent. Soc., vol. 49, p. 106.



Explanation of figures

- Fig. 1. Wing of female imago of *Acentrella japonica* n. sp.
- Fig. 2. End of male abdomen of the same
- Fig. 3. Wing of female subimago of *Ameletus montanus* n. sp.
- Fig. 4. End of male abdomen of the same
- Fig. 5. End of female abdomen of the same