

## AN AUSTRALIAN MAYFLY OF THE FAMILY EPHEMERELLIDAE (EPHEMEROPTERA)

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### Abstract

The nymph and adult female of *Austremerella picta* gen. & sp. n. are described.

The family Ephemerellidae has an almost world-wide distribution. Species of *Ephemerella* are abundant in the holarctic and there are related genera in South America and South Africa. It is not unexpected then that a representative of the family should occur in Australia.

In January 1943 an attractive adult female mayfly that was considered to be a species of *Ephemerella* was collected, from a spider's web, along a small stream in the Lamington National Park, Queensland. At much the same time in the following year another two adult females were collected in the same manner. On this occasion a female subimago was also obtained.

On the basis of this information Harker (1950) included the Ephemerellidae in her key to the families occurring in Australia without acknowledgment or reference to the known specimens. Doubt was subsequently expressed regarding the validity of her record of the family from Australia. However, the family Ephemerellidae does occur and, as the nymph has now been recognised, the species can be described for, in this family, the nymphs possess better diagnostic characters than the adults.

The single known nymph was discovered in a tube of unsorted mayfly nymphs collected in August 1942 from the same locality as the adults. The nymph was collected in the moderately rapid flowing waters of a small, clear mountain stream bordered by rain-forest. The cuticle of the nymph is more heavily sclerotised than it is in the associated leptophlebiid nymphs from which it is also distinguished by the prominent double row of spines dorsally on the abdomen and by its less flattened body form.

The nymph of the Australian species is most unusual in possessing a pair of gills on the second abdominal segment and in the absence of gills from the seventh segment. The five pairs of gills occur on segments two to six. Doubt could be expressed concerning the correct association of this nymph with the *Ephemerella*-like adults but the venation of the nymphal wing pad shows clearly the distinctive strongly arched CuP lying very close to CuA at the base and its wide separation from 1A. The nymph is rather like that of *Tricorythodes* in most respects. The two genera have the same placement of abdominal gills but in *Tricorythodes* the first gill is enlarged and modified into a gill cover.

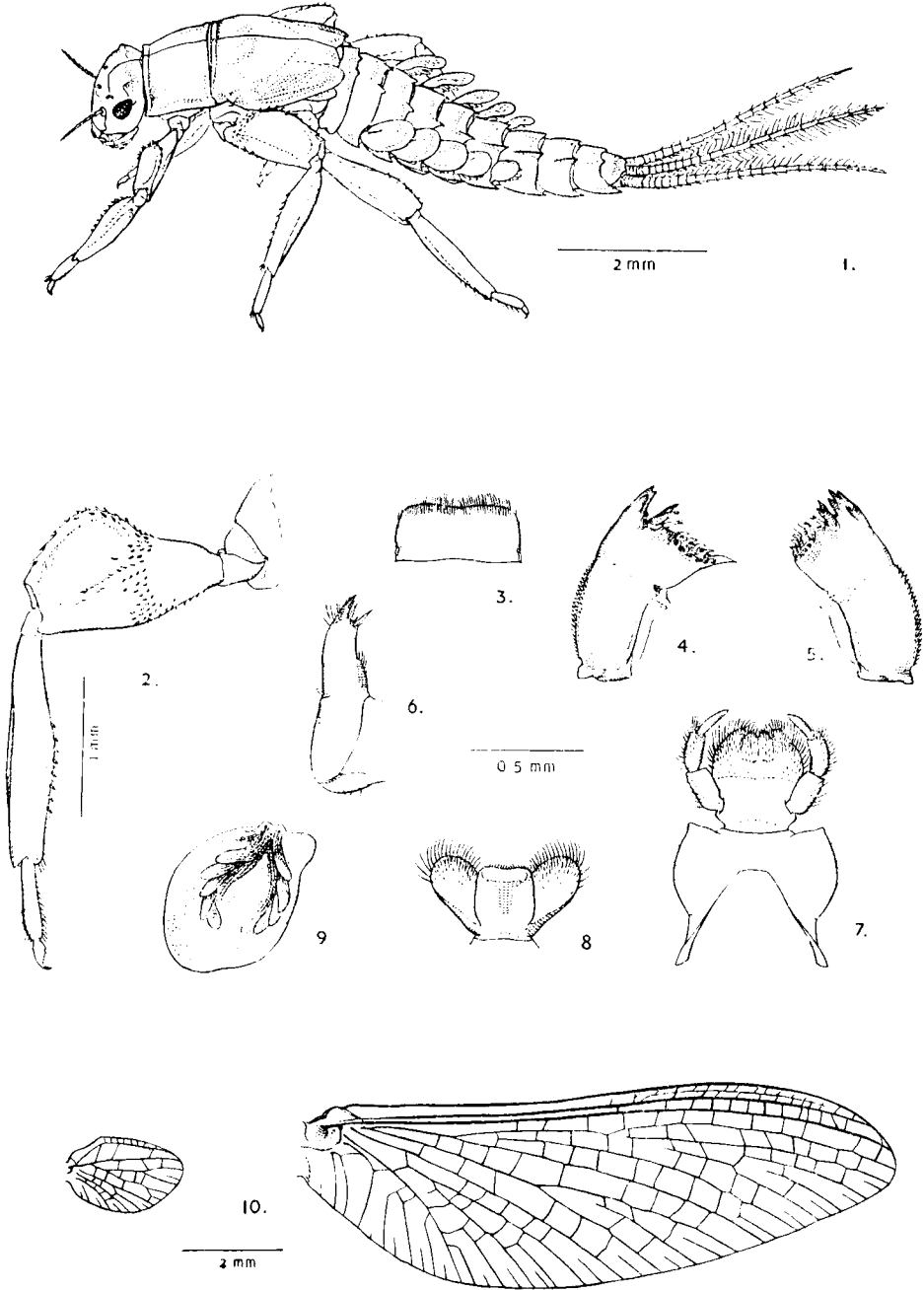
The distinctive features of the Australian nymph have necessitated some modification of the family characterisation.

### Family EPHEMERELLIDAE

The adults differ from the Leptophlebiidae in possessing one or two very long intercalary veins between MP and CuA and with detached marginal intercalaries in the forewing.

The nymphs differ from the Leptophlebiidae in that gills are absent from one or more of segments one to seven. When a gill is present on the first segment it is rudimentary. Gills are absent from the second segment except in the primitive genera. Gills are sometimes absent from the third segment. The nymphs are of very variable form. Many have developed prominent dorsal tubercles on the head and abdomen. The maxillary palp is quite variable, it may be rudimentary or entirely absent.

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FIGS. 1-10.—*Austremerella picta* gen. & sp. n.: (1) nymph; (2) fore leg, lateral; (3) labrum, dorsal; (4, 5) right and left mandibles, ventral; (6) maxilla, ventral; (7) labium, ventral; (8) hypopharynx, ventral; (9) second abdominal gill, ventral; (10) fore and hind wings.

**Austremerella** gen. n.

*Nymph*.—Paired abdominal gills on segments two to six, the first pair not modified into opercula. A double row of tubercles on all abdominal segments. Femora and tibiae flattened, with a median longitudinal ridge on the upper surface. Vertex of head with a pair of tubercles. The nymph differs from all other genera of the family in gill structure.

*Adult female*.—Similar to *Ephemerella*.

Type species: *Austremerella picta* sp. n.

**Austremerella picta** sp. n. (Figs. 1-10)

*Types*: QUEENSLAND: *Holotype* nymph, *paratype* adult females, typical adult female and damaged female subimago; Lamington National Park, 11-16.viii.1942, E. F. Riek (adults collected in January 1942 and 1943). All types in Australian National Collection.

*Nymph*.—Wing-pads partly developed but nymph not fully mature. Length, excluding caudal filaments, 7.0 mm. Median filament 3.5 mm (cerci damaged but apparently of similar length). Colour bleached, only eyes dark. Head with a pair of only slightly developed occipital tubercles. Labrum not deeply emarginate at meson. Maxilla with palp rudimentary. Thorax without tubercles. Mesonotum with caudal margin deeply emarginate at meson. Pronotum rectangular, with the four corners produced. Legs short and thick with numerous dorsal and ventral spines, with an area of spines extending across outer surface of femur towards its base. The median longitudinal ridge on upper (outer) surface of tibiae produced over the base of the tarsus to a blunt point. Tarsal claw with four or five large denticles. Abdomen with prominent, paired, dorsal, submedian spines on segments 1-10, largest on segments 6-8. Posterolateral spine on segments 2-9, most acute and posteriorly directed on segments 3-6, blunt on segment 7 but lengthening again on segments 8-9. Caudal filaments with whorls of hairs at the junctions of the segments and with some hairs in between; hairs long over the middle of the median segment.

*Adult female*.—Length of forewing 11.5 mm, of hindwing 2.2 mm. Wings and body pinkish with some brownish hues especially along anterior border of forewing and on body. Wing venation similar to that of *Ephemerella*. Pterostigmatic cross veins forming a double series of cellules. Costal cross veins absent over basal two thirds of wing, usually with two well developed lower branches on CuA. Mesothorax produced at apex into two very long, thin filaments.

*Subimago female*.—Brown black due to the overlying, thin black pellicle masking the adult pigmentation.

This species strengthens the association between the families Ephemerellidae and Tricorythidae.

## REFERENCE

HARKER, J. (1950).—Australian Ephemeroptera Part 1. *Proc. Linn. Soc. N.S.W.* 75: 1-34.

## ABSTRACT FROM PAST PROCEEDINGS

This abstract was prepared for the Minutes of the Meeting of the date given and the exhibitor mentioned is the authority for facts.

**OENOCHROMA TURNERI** LUCAS

August 17, 1927.—MR. FRANZEN showed a specimen of the moth *Oenochroma turneri* Lucas which has been bred from a pupa found amongst the dead remnants of a staghorn on a weeping fig tree near Enoggera water reservoir. This seems to indicate that the larva is a fig leaf feeder and may be easily found.

Dr. Turner stated that the type of this species was a chance capture made by himself in Brisbane about 40 years ago, and as far as he knew no other specimen of this moth was known.