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A NEW GENUS AND SPECIES OF MAY-FLY (ORDER PLECTOPTERA) FROM TASMANIA, BELONGING TO THE FAMILY *SIPHLURIDAE.*

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(Plate xxxiv., and two Text-figures).

The *Siphluridae* are probably the most archaic family of May-flies at present existing. Though found in many parts of the world, their head-quarters may justly be said to be in New Zealand, where the large and magnificent species of the genera *Oniscigaster, Coloburiscus* and *Ameletus* were abundant everywhere until the introduction of the Brown and Rainbow Trout greatly reduced their numbers. In Australia, the only record for the family so far is a single species of *Coloburiscus* from Victoria. Larvae closely resembling those of *Ameletus* are well known to me in some of the Blue Mountain streams, but they die almost as soon as taken out of the water, and I have never yet either seen or reared the imago. *Oniscigaster,* which is the most remarkable and probably the most archaic genus of the family, has so far not been recorded outside of New Zealand.

In January, 1917, I was on a visit to Cradle Mountain, Tasmania, with Mr. G. H. Hardy, then Curator of the Tasmanian Museum, Hobart. We left for Launceston on the 22nd. On the 21st, we paid our last visit to Lakes Dove and Lilla. While skirting the edge of the latter lake, on the return journey, I noticed a May-fly climbing up some reeds growing out of fairly shallow water in a small bay of the lake. I secured this in a pill-box, and at once saw that it was something of interest. In the course of a few minutes, five more subimagines of the same species emerged from the water and climbed up the reeds. All these were secured. Two of them were killed and set the same day. The other four were taken alive in the pill-boxes to Launceston, where we arrived on the 24th. Two of them died *en route,* but the other two changed into the imaginal stage late on the 23rd. Thus they existed more than two whole days, under adverse conditions, in the subimaginal stage. This long existence in the usually exceedingly short and transient subimaginal stage is also characteristic of the New Zealand *Siphluridae,* and is doubtless a survival of a very ancient habit of life, as is also the manner of emergence by crawling up a reed-stem, instead of by flying directly up from the surface of the water.

When examined, these May-flies proved to belong to the family *Siphluridae,* and also to be very closely allied to *Oniscigaster.* For their reception I here propose to define a new genus with the name *Tasmanophlebia,* as follows:—

Family SIPHLURIDAE.

Genus TASMANOPHLEBIA, n.g. (Plate xxxiv., and Text-figs. 1, 2.)

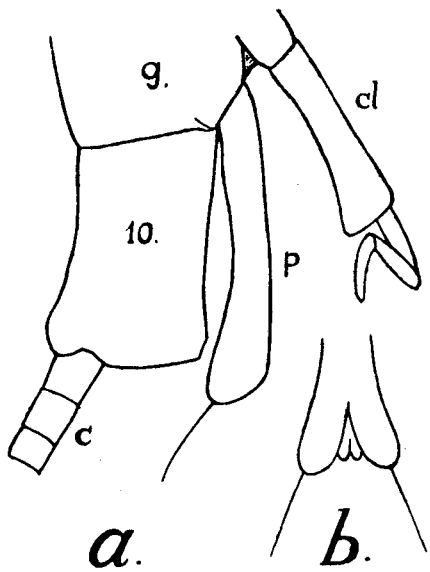
Insects having an expanse of about one inch, the hindwing about half as long and two-thirds as wide as the fore. Venation closely resembling that of *Oniscigaster*. Forelegs in male about three-fourths the length of forewing, those of female much shorter. Tarsus of hindleg longer than tibia. Tarsal claws dissimilar, one blunt and one sharply hooked. Abdomen narrowly cylindrical, without lateral dilatations on any of the segments. Cerci present, longer than abdomen, but the appendix dorsalis completely absent in both sexes.

Genotype, *Tasmanophlebia lacustris*, n. sp.

This genus is very close to the New Zealand genus *Oniscigaster*, from which it is to be distinguished by its much smaller size, its narrow cylindrical abdomen without any lateral dilatations, the complete absence of the appendix dorsalis in both sexes, and also by the habit of the larva dwelling in the still water of lakes. The larvae of all the other *Siphluridae* known in New Zealand and Australia dwell in the fast running water of mountain streams.

TASMANOPHLEBIA LACUSTRIS, n. sp. (Plate xxxiv., and Text-figs. 1, 2.)

♂, *Imago*: Total length, 14; forewing, 12; hindwing, 5.7; expanse of wings, 26 mm.



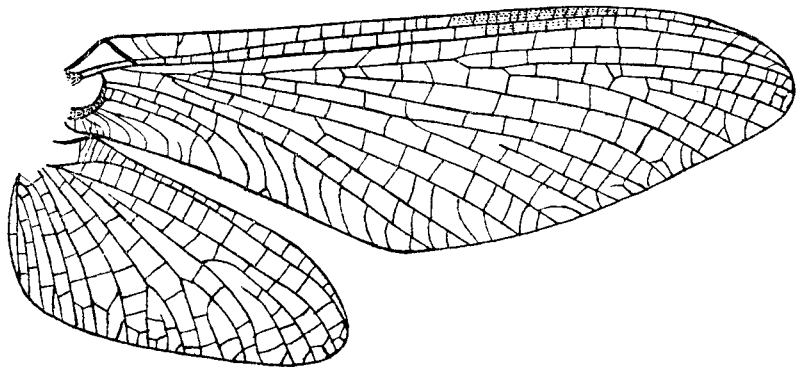
Text-fig. 1. *Tasmanophlebia lacustris*, n.g. et sp., genitalia of male imago. *a*, lateral view of end of abdomen, showing base of cercus *(c)*, left clasper *(cl)*, and penis *(p)*. Right clasper omitted. 9, 10, the last two segments of the abdomen. (x 40). *b*, Ventral view of distal portion of penis. (x 40).

Head and *thorax* rich dark brown. *Forelegs* 9 mm. long, dark brown; *middle-* and *hindlegs* medium brown.

Abdomen dark shining brown, the segments separated very distinctly by

pale annuli. *Cerci* 13.5 mm. long, medium brown, with from 45 to 50 segments.* *Genitalia* as shown in Text-fig. 1.

Wings shining hyaline, suffused with rich umber brown basally and along costa to beyond pterostigma, as shown in Plate xxxiv., fig. 1. This colour is darkest on the pterostigma of forewing, fairly dark on the anal area of the



Text-fig. 2. *Tasmanophlebia lacustris*, n.g. et sp., wing-venation of ♀ imago. (x 7½).

same wing and on costa of hindwing, and paler on the rest of the suffused area. Veins dark brown. *Venation* as shown in Text-fig. 2.

♀, *Imago*: Total length, 13; forewing, 11.5; hindwing, 5.8; expanse of wings, 25 mm.

Similar to male, except that the forelegs are only 5 mm. long, the eyes smaller, the abdomen rather duller, with less conspicuous annuli separating the segments, and the wings somewhat narrower and almost totally hyaline, being only suffused with brown on the pterostigma and at their bases, as shown in Plate xxxiv., fig. 2.

♂, *Subimago*: Differs from the imago in being a somewhat smaller and slenderer insect, the body colouring duller, the forelegs and cerci much shorter, the wings narrower, not hyaline, but clouded with pale dull greyish; pterostigma and all the veins dark greyish; a touch of brown at bases of wings. (Plate xxxiv., fig. 3.).

♀, *Subimago*: Closely resembling the male subimago, but having the abdomen a duller greyish brown, and the brown at the base of the wings more conspicuously present. (Plate xxxiv., fig. 4).

Hab.—Lake Lilla, 3200 feet, near Cradle Mountain, N.W. Tasmania.

Types. Holotype ♂ imago and allotype ♀ imago, reared from subimagines, Jan. 23rd, 1917. Also ♂ and ♀ subimagines, taken Jan. 21st, 1917, at same time as imaginal types. All these in the Tillyard Collection, Cawthron Institute, Nelson, N.Z.

The discovery of this insect throws some interesting light upon the close relationships existing between the Australian and New Zealand May-fly Fauna. New Zealand, with its abundant, rapid and ever-flowing rivers, and its numerous lakes, is a paradise for these insects. Australia, on the other hand, with its

* The cerci of the type male imago were accidently broken off before the photographs were taken for Plate xxxiv.

dry climate, its sparse river-systems, many of which cease to flow during droughts, and its absence of lakes, is about as unfavourable a region for their development as can be found anywhere. Now in New Zealand the dominant family everywhere is the *Leptophlebiidae,* represented by the two genera *Atalophlebia* and *Deleatidium.* The same family is dominant in Australia, the genus *Atalophlebia* containing most of the known Australian species of Mayflies. The only other two families known in New Zealand are the *Siphluridae* and the *Ephemeridae,* the former being represented by the three genera already mentioned at the beginning of this paper, the latter by the single fine genus *Ichthybotus,* peculiar to New Zealand. Of the three New Zealand genera of *Siphluridae, Coloburiscus* is represented in Australia by a single Victorian species, *Ameletus* occurs on the Blue Mountains, though the species has not yet been described, and now we see that the most remarkable genus of all, *Oniscigaster,* is found to have its counterpart in the closely allied Tasmanian genus described in this paper. As regards the genus *Ichthybotus,* I have myself collected larvae belonging to this genus in the Fish River, N.S.W.; and there is, in the National Museum at Melbourne, a fine subimago of another species, not yet described, from the Upper Yarra River.

The only element of the Australian Mayfly fauna not present in New Zealand, or at any rate not yet discovered there, consists of two exceedingly small tropical species of the family *Baetidae,* one of which extends as far south as New South Wales, while the other is confined to the Northern Territory. It is possible that a representative of this family may yet be found in the North Auckland district in New Zealand.

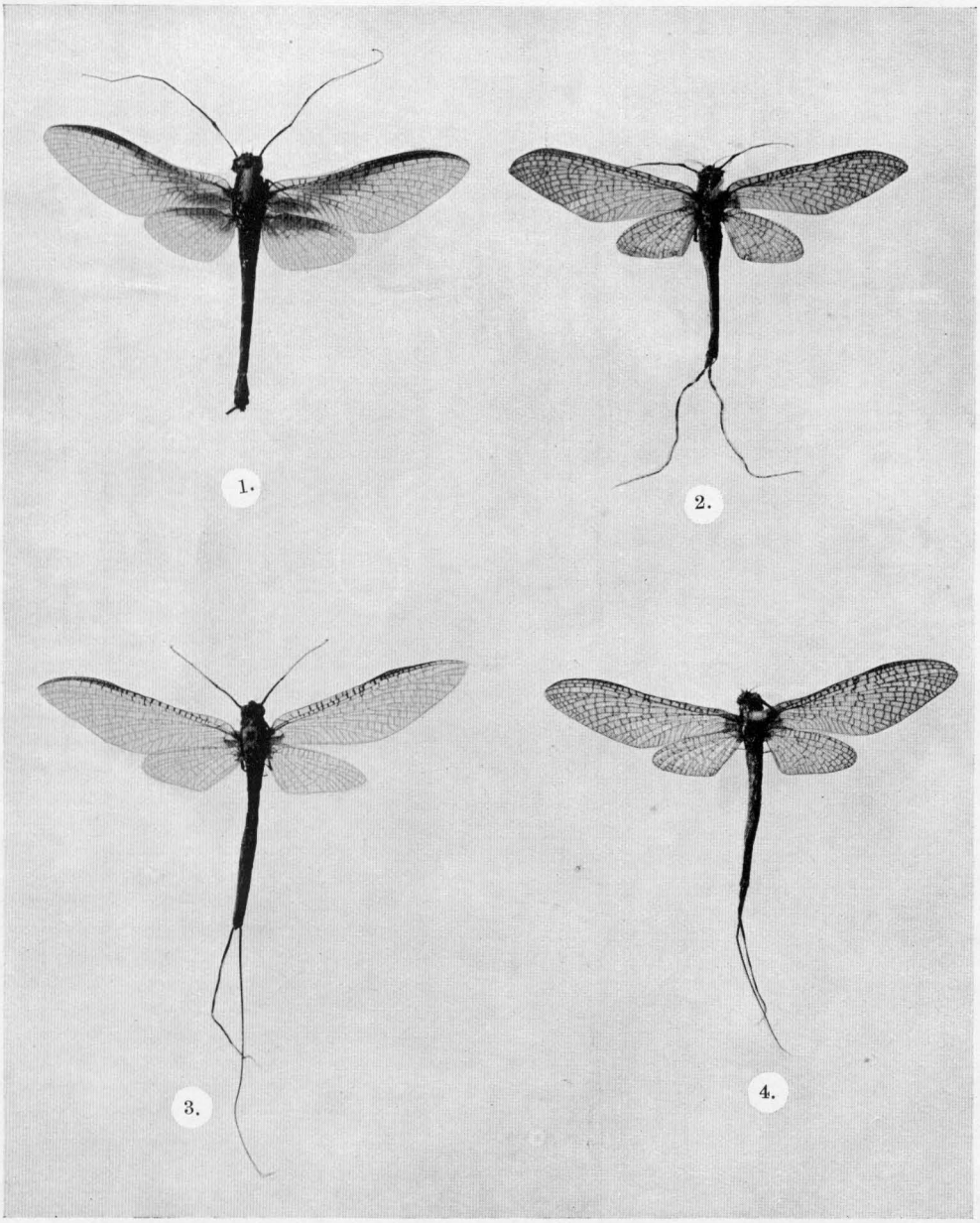
Thus we see that the Mayfly faunas of Australia and New Zealand are very closely allied, in spite of the difference of climate. The same is true of the Stonefly fauna, though that of Australia is only just beginning to be made known.

In concluding this paper, I wish to thank Mr. W. C. Davies, Curator of the Cawthron Institute, for taking the excellent photograph from which Plate xxxiv. has been prepared.

EXPLANATION OF PLATE XXXIV.

(All figures x 2½).

Fig. 1. *Tasmanophlebia lacustris*, n.g. et sp., male imago.
Fig. 2. ,, ,, ,, ,, female imago.
Fig. 3. ,, ,, ,, ,, male subimago.
Fig. 4. ,, ,, ,, ,, female subimago.



Tasmanophlebia lacustris, n.g. et sp.

1. ♂ imago; 2. ♀ imago; 3. ♂ subimago; 4. ♀ subimago.