

Notes On New Zealand Diptera

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Abstract

PREVIOUS records of the three New Zealand species of the genus *Asteia* are mentioned, and two new localities for *A. levis* Hutton are given. This species is figured and its structure discussed in comparison with *A. crassinervis* Malloch and *A. tonnoiri* Malloch.

Confusion over localities recorded for *Austrosimulium vexans* Mik is discussed, and recent collection of this species from Campbell Island is mentioned. Characters for separation of *A. vexans* Mik and *A. unguatum* Tonnoir are given, and larval characters of the former are described and figured.

A new locality for the ceratopogonid, *Acanthoconops myersi* Tonnoir is mentioned, and general remarks on this species are included.

ASTEIIDAE

Asteia levis Hutton was described by Hutton (1902) from a single male from Stewart Island, the type being deposited in the Canterbury Museum. Malloch (1930) described two new species of *Asteia*, *crassinervis*, from a single female from 4,000 feet on Mt. Arthur, Nelson, and *tonnoiri* from a single male from Aniseed Valley, Nelson, and gave a key to the three species as well as some notes made by Tonnoir on the type specimen of *A. levis* Hutt. *A. levis* (wing Fig. 1) is readily separated from the other two New Zealand species by the ferrugineous venter of the thorax and the apparently bare arista.



FIG. 1.—*Asteia levis* Hutt., wing. FIG. 2.—*Asteia levis* Hutt., arista

* Now South Pacific Commission, Noumea, New Caledonia.

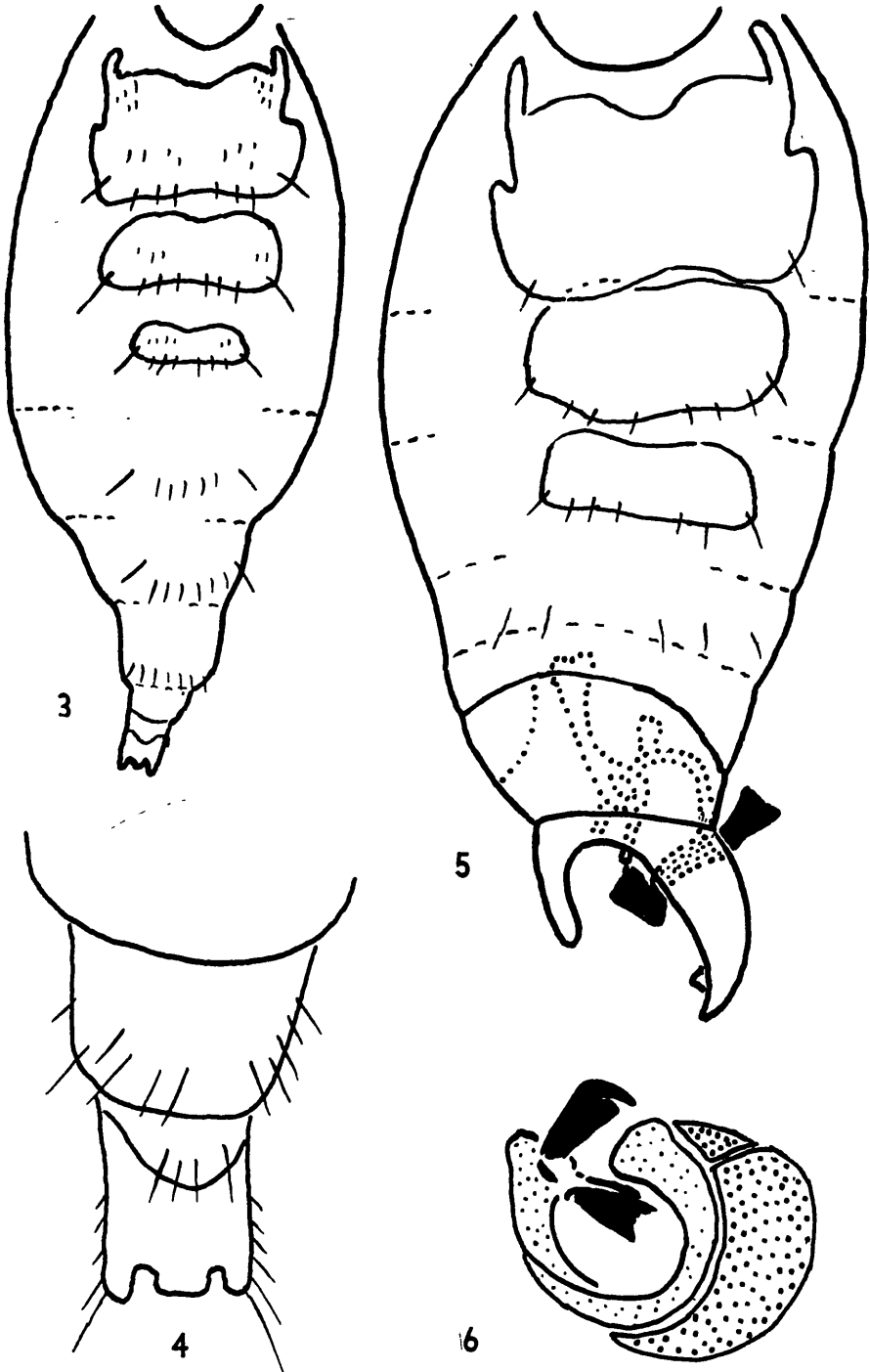


FIG. 3.—*Asteia levis* Hutt, female abdomen dorsal
 FIG. 4.—*Asteia levis* Hutt., female abdomen apex enlarged.
 FIG. 5.—*Asteia levis* Hutt., male abdomen dorsal
 FIG. 6.—*Asteia levis* Hutt., male hypopygium caudal view

A species of *Asteia* was encountered in numbers in a shallow cave just above high water mark on the West Coast of the South Island about one mile north of the Paringa River on November 16, 1950. It was remarkable for the white aspect of the abdomen both in flight and at rest. The food of the larvae of flies of this family is unknown. If, as seems likely, the flies were breeding in the cave, the likely breeding media are seabird or seal (?) excrement which were noted to be present, or seaweed. Another female was collected by Mr. J. S. Timlin, in a rock crevice on the East Coast of Otago at Karitane, on September 22, 1951. The three localities from which this insect has been recorded are all in the southern half of the South Island, and—since the type material from Stewart Island was almost certainly from a coastal locality—all on the sea coast.

My specimens have been compared with Hutton's type, and I consider them to be the same species. The eyes in my specimens are red, and they show the same tinge in the type. The antennal arista (Fig. 2) is straight, and appears bare at low magnifications, but in both the type and in my specimens has about ten short branches, which are not longer than the basal width of the arista. In the other New Zealand species the arista is zig-zag, with much longer branches, which are visible under low power. The type, as Tonnoir remarks, has the following thoracic chaetotaxy:—Three dorsocentrals, one post-humeral, one pre-sutural, two supra-alars, and one post-alar. In my specimens one of these setae, either the post-alar or one of the supra-alars is absent. The abdomen in the type is wholly black, with the hypopygium lighter in colour, but I believe this to be due to discolouration due to decomposition of the abdominal contents. The abdomen of the Paringa specimens is shown in dorsal view in Figs. 3, 4, and 5. The abdomens of the types of *crassinervis* Malloch and *tonnoiri* Malloch are similar in the complete lack of pigmentation ventrally, and its presence only on the anterior half of the dorsum, where there are three sclerites decreasing in size posteriorly. In the female there is no pigmentation or sclerotization of the apical segments. In the male two segments between the third tergite and the hypopygium are unpigmented and unsclerotized. The terminal segments in the male (Figs. 5 and 6) consist of an asymmetrical black sclerite covering the dorsal and right pleural regions, with a smaller sub-triangular sclerite on the pleural region on the left side. Caudad of this are the claspers, which are more or less spatulate apically and fused basally. The aedeagus (Fig. 7) is characterised by two flexible elements (which may be spiral in some mounts) joining the basal and apical portions and by a claw or hook-like structure at the extreme apex. A rod articu-

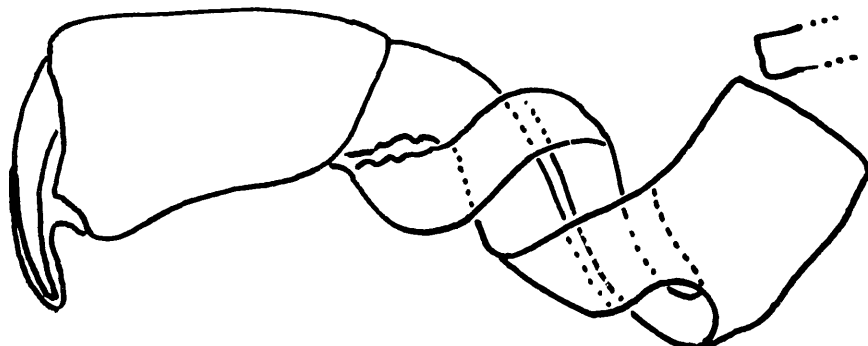


FIG. 7.—*Asteia levis* Hutt., aedeagus.

lates with the base of the aedeagus and extends anteriorly within the abdomen. A semicircular sclerite attached posteriorly to the fused base of the claspers also extends within the abdomen. In a median position within the abdomen is an elongate bar or rod (ejaculatory apodeme) expanded at both ends and with an aperture at the posterior end.

SIMULIIDAE

Austrosimulium vexans Mik. This species is recorded by Lamb (1909) from Campbell Island and Auckland Island, but there is some confusion in his record since Auckland Island, the type locality, is given as a new locality, and Mik is quoted as the authority for the Campbell Island record. The names of the two islands may have been transposed and Lamb may have seen specimens from Campbell Island.

Specimens of adult females were collected by Mr. R. J. Langbein on the window of a hut on Campbell Island, in December, 1949. The adults of *vexans* Mik and *ungulatum* Tonnoir are the only New Zealand species with strongly toothed tarsal claws, but the two may be separated by the colouration of the base of the third antennal segment, which is red in *ungulatum* and black in *vexans*. Mr. Langbein also sent two larvae collected from leaves dipping into a small

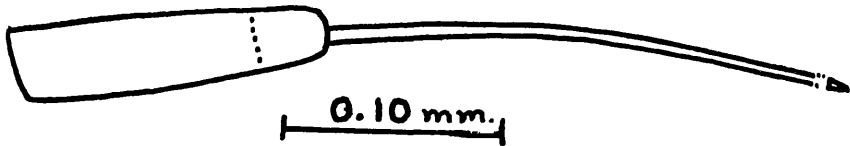


FIG. 8.—*Austrosimulium vexans* Mik., antenna of larva.

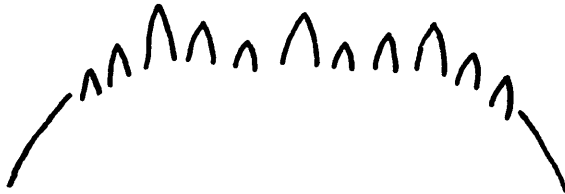


FIG. 9.—*Austrosimulium vexans* Mik., submental plate of larva.

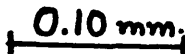
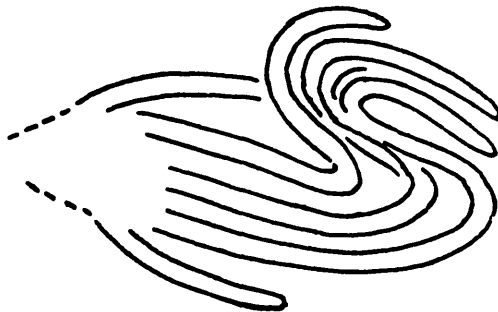


FIG. 10.—*Austrosimulium vexans* Mik., gill spot of larva.

stream, in January, 1949. Both larvae showed gill spots. A later attempt by Mr. D. A. Challies to secure pupae was unsuccessful, but he sent more larvae, one of which had the gill spot present. The larva of *vexans* has not previously been described, and the pupa is still unknown, but the structure of the gill spot indicates that the pupa when found will be readily distinguishable from all other New Zealand species.

Larva. Length 4.5 mm. Dorsum of head without evident pattern. Length of first and second joints of antenna in ratio 1:1.5. Apical pseudo-joint of first joint less than one quarter the length of the whole joint. Teeth on submental plate as in Fig. 9. Gill spots (Fig. 10) with filaments coiled anteriorly. The gill filaments are relatively few, six to eight longer filaments and one or two shorter.

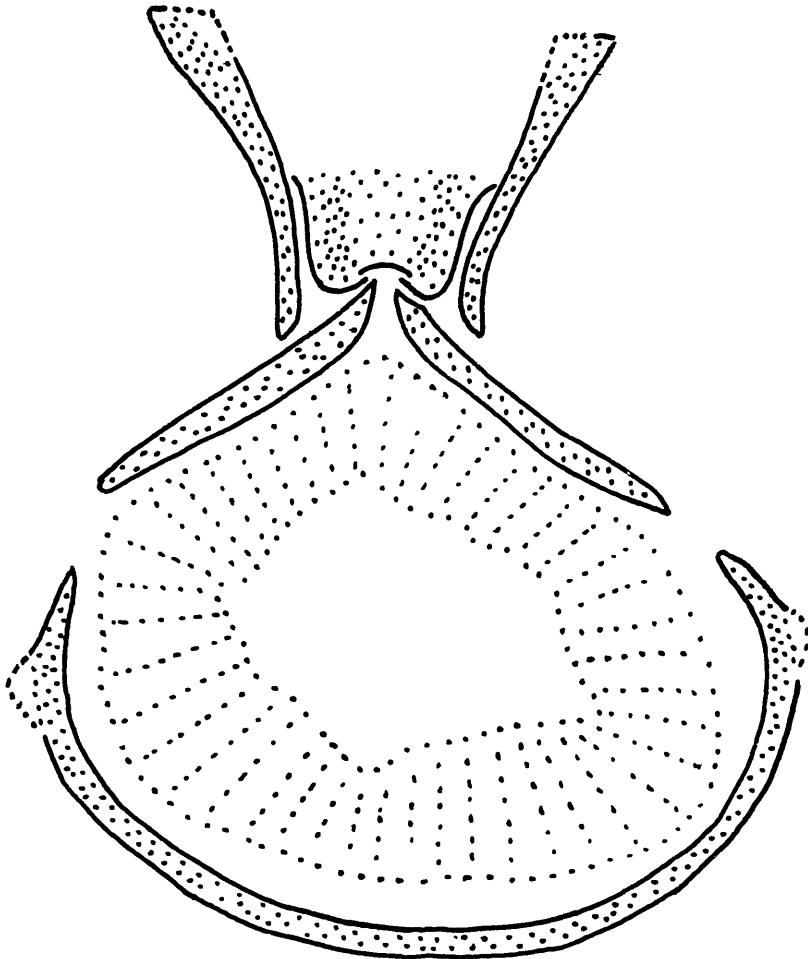


FIG. 11.—*Austrosimulium vexans* Mik., caudal view of anal segment of larva.

They are relatively wide in basal diameter (0.025 mm.) and only slightly tapered distally. On the caudal segment the ventral papillae are present, and the rectal gills are tri-lobed with the lobes simple. The semicircular ventral ring sclerite is present, but the dorsal ends of this sclerite (Fig. 11) are not expanded, or very slightly expanded.

Of the New Zealand species of *Austrosimulium* this larva is most like *A. tilliardii* Tonn. in the small number and large diameter of the gill filaments, but all the New Zealand species (except *ungulatum*, which is unknown) have a much larger expansion of the dorsal ends of the ventral ring sclerite. On adult and larval characters *vexans* would fall in Mackerras' (1949) "mirabile group" with toothed claws in the adult and the ring sclerite and ventral papillae present. Of the Australian species of *Austrosimulium*, *vexans* is most like *crassipes* Tonnoir in the small number of gill filaments, the width of the gill filaments, and in the lack of prominent expansions on the dorsal ends of the ring sclerite, but the gill filaments are shorter than in *crassipes*.

The larvae collected by Mr. Challies were "mostly found on rocks on the side of dammed up, slow running streams, moving over the peat deposit on the rocks like small maggots." Examination of the stomach contents of three larvae did not disclose any diatoms such as frequently pack the stomach of larvae of some of the New Zealand species.

CERATOPOGONIDAE

Acanthoconops myersi Tonnoir. The type locality and the only recorded locality for this insect is Spirits Bay, near North Cape.

There are twenty-eight other native species in the family in New Zealand, but *myersi* is the only species known to bite man. Only the female is known, and the breeding habits are unknown. I have recently (January, 1952) secured specimens of this fly from Rabbit Island, between Nelson and Mapua. They are apparently identical with specimens from Tom Bowling's Bay (Coll. R. A. Cumber, 10/2/51), and with Tonnoir's description. The very small size, 1.5 mm., and the milky white wings immediately distinguish them from the biting Simuliids in N.Z. In full sun in the mid-afternoon the midges were biting in the sandhills above high tide mark on the sea side of the island amongst marram grass. It is unlikely that the distribution is as discontinuous as is indicated by the two known localities since comparable ecological conditions must be found at intermediate localities.

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