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## New York State Museum

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ON

INJURIOUS AND OTHER INSECTS

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1908

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## Appendix A

## STUDIES OF AQUATIC INSECTS

## A PECULIAR NEW MAY FLY FROM SACANDAGA PARK

BY JAMES G. NEEDHAM

Among a small lot of neuropteroid insects sent me by Dr Felt for determination, was a new May fly with a remarkable development of the abdomen. Five of the abdominal segments have their flaring lateral margins expanded broadly, forming a wide parachute or aeroplane. This peculiarity has its parallel among known May flies only in the New Zealand species *Oniscigaster wakefieldi*; a species that was described by McLachlan 36 years ago, and made the subject of a special report by him to the British Association for the Advancement of Science<sup>1</sup> and an announcement to the Entomological Society of London,<sup>2</sup> and of two special papers.<sup>3</sup> The last paper gave full descriptions of both nymphal and adult<sup>4</sup> stages. Eaton's *Monographic Revision of Recent Ephemeroidea* pages 224-26 gives a description of the adult insect, and adds [pl. 21, fig. 36] an excellent figure of the venation. In Hutton's list of New Zealand Neuroptera<sup>5</sup> is found another description of the adult. In 1899 Eaton<sup>6</sup> added two additional New Zealand species to the genus, *O. intermedius*, with considerably less dilatation of the lateral margins of the abdominal segments, and *O. distans*, with hardly any lateral expansion at all. So Eaton dropped from his characterization of the genus all mention of the onisciform abdomen, that had brought the type species into such prominent notice. In 1904 Hudson described the three species in his New Zealand Neuroptera [p. 42-45] and added a much needed description of the nymph of *O. distans* [pl. I, fig. 11; pl. II, fig. 15], which appears to agree quite well with that of the typical species.

The New York May fly about to be described exhibits a more

<sup>1</sup> Report of 1873, p. 118 (1874).

<sup>2</sup> Proceedings for 1874, p. vi.

<sup>3</sup> Ent. Mo. Mag., 10:108-9, wood cut, 1873; Linn. Soc. Zool. Jour. 1874. 12:39-46, pl. 5,

fig. 1-5.

<sup>4</sup> The figure of the adult is copied by Sharpe in volume 5 of the Cambridge Natural History.

<sup>5</sup> New Zeal. Inst. Trans. 1898. 31:118.

<sup>6</sup> Ent. Soc. Lond. Trans. p. 292-93, pl. 10, fig. 6a, 6b, 6c.

marked dilatation of the lateral margins of the abdomen than even *Oniscigaster wakefieldi*. Its abdomen is more than onisciform: it is a veritable parachute. The expansion involves segments 5 to 9 of the abdomen (in *O. wakefieldi*, only 6 to 9), and begins and ends more abruptly than in the New Zealand species. Our insect distinguishes itself from *Oniscigaster*, however, by lacking a median caudal seta, and by a symmetrical forking of the median vein, that forking being very unsymmetrical in *Oniscigaster*. And since in these respects it agrees with the genus *Siphylurus*, which stands in the system next *Oniscigaster*, I was at first inclined, in spite of the parachute, which in *Oniscigaster* is certainly of no great systematic consequence, to refer it to *Siphylurus*. By my key in Bulletin 86, N. Y. State Museum, page 22, it would be traced to *Siphylurus*, with the discrepancy that there is no backward prolongation of the sternite of the 9th abdominal segment in the female. It differs from *Siphylurus*, also, in having the claws of the forefeet differentiated from those of the other feet, being obtuse and inflated and not at all clawlike in form: also, in having the radial sector in the hind wing twice dichotomously and symmetrically forked. I think therefore that this species represents a genus distinct from both *Siphylurus* and *Oniscigaster*, although closely allied to both, and as such I describe it below. Probably the male, and the nymph if known, would add other differential characters.

*Siphlonisca* gen. nov.

Caudal setae two, slightly longer than the body. Claws of the front tarsus inflated and obtuse; those on the other tarsi hooked and clawlike, and similar each to each. Hind tibia longer than its tarsus: last segment of tarsus longest, in all the feet. Median and cubital veins in the forewing symmetrically forked, and the radial sector in the hind wing equally twice forked: no humeral angulation of hind wing. Mesothorax with a prominent midventral spine. Abdomen with conspicuous lateral expansion of the middle segments.

Type the following species.

*Siphlonisca aerodromia* sp. nov.

Length (♀) 19 mm, setae 20 mm additional; expanse of wings 37 mm. Abdomen 13 mm long and 2 mm wide, expanded to 4 mm wide on the 5th to 9th segments.

Color brown varied with paler. Head fawn-yellow above, marked with blackish on the sides of the vertical facial carina, and around the ocelli internally, and bearing a mark shaped like the zodiacal sign for Aries along the middle of the head, the open end of the sign being in front. Antennae pale, about as long as the head. Thorax brown more or less blackish on the sides, and in the rear above, the top of the mesothorax somewhat rufescent and shining. Between the bases of the middle legs a stout, thornlike spine, inclined slightly to rear, arises from the mesosternum. Legs pale, the front femora being slightly darkened, and the tips of all tarsi indistinctly so.

Wings hyaline with brown veins, cross veins more or less bordered with brown in the costoradial strip, especially a few approximated cross veins near the bulla, and a line of others, similarly approximated, extending from that point posteriorly across the wing [pl. 2, fig. 1].

Abdomen with a definite pattern of brown and paler yellow (possibly, greenish in life), subcylindric, the lateral margins of segments 5 to 9 suddenly dilated into wide, flat expansions, which double the width; each of these expansions obtusely rounded anteriorly, and produced posteriorly at its hind angle into a broad, flat, triangular tooth. These expansions are dark brown, paler basally, where they abut on a black line on the lateral margin of the abdomen. On the pale dorsum there are submedian blackish ( )- marks on each segment, the marks increasing in size posteriorly, becoming streaks on segments 9 and 10 [pl. 2, fig. 2]. On the ventral surface there are corresponding small and distant paired dots as far as the 7th segment, diffuse on the 8th, and becoming elongate dashes on the 9th, and absent on the 10th. The 10th segment is short and cylindric, hardly surpassing the tip of the lateral teeth of the 9th. There is no ventral prolongation of the 9th sternite. Setae white, or slightly brownish at the extreme base.

A single female imago from Sacandaga Park, collected by C. P. Alexander, Johnstown, N. Y.

As the above description is going through the press, additional specimens representing both sexes, are received from Mr Alexander. These he collected at Sacandaga Park on June 6, 1909. Mr Alexander writes that they were abundant, and that they kept high in air where they were conspicuous by reason of the wide abdomen.

The male is of about the same size as the female, with white,

nearly bare setae 25 mm long, and brown fore legs whose tarsi are 9 mm long. The enlarged and smoothly rounded eyes of the male just meet each other above the head. The face is black, with the vertical nasal carina yellow, and also a spot behind the ocelli and between the compound eyes. Otherwise the coloration is as in the female. The segments of the fore tarsus of the male are of nearly equal length, the 5th being perhaps a trifle shorter than the others: in middle and hind tarsi, the four basal segments are of approximately equal length, while the 5th is as long as any two other segments. Unlike the female, which has blunt and flabellate claws on the fore tarsi, those of the male are on all tarsi sharply hooked and similar. In several of the specimens the radial sector of the hind wing has its second forks less equal than in the female described above, the lower fork being deeper than the upper.

The appendages of the male abdomen are strongly chitinized, the forceps base is longer than the 9th segment, widened distally, broadly truncated on each hind angle to receive the much narrower base of the forceps, and angularly excavate on the wrinkled but strongly chitinized hind margin in a broadly triangular rear notch. The forceps limbs are long and strongly divaricate and conspicuous. Each consists of four segments, of which the first, third and fourth are short and of about equal length and are together about equal in length to the second segment. The apical half of the forceps is transversely wrinkled, and it is wholly dark brown in color.

After studying the male I conclude that the features which chiefly distinguish this genus from *Siphurus* are in both sexes the onisciform abdomen, and the midventral thoracic spines.

While the foregoing is passing through the printer's hands another species of Mayfly of the genus *Potamanthus* has been sent me by Dr Felt, collected on June 29, 1909 at Schenectady. It is larger than *P. diaphanus*, described in the report of the State Entomologist for 1907 [p. 193-94, and pl. 10, fig. 5], and is readily distinguished therefrom by the abbreviated middle caudal seta and by the form of the appendages in the male.

#### *Potamanthus inequalis* sp. nov.

Length of body 11 mm, of fore leg about 10 mm, of lateral setae 26 mm, of middle seta 15 mm, expanse of wings 24 mm. Color white, with fuscous head, pale yellowish thorax and translucent white abdomen. Legs white except the slightly infuscated tips of

fore tarsi and tibiae, and the joinings of the segments of the same tarsi. Wings whitish hyaline, with pinkish iridescence. End segments of the abdomen of a dull satiny whiteness on the dorsal side. Setae white, with the joinings very faintly darker in color, the middle seta but little more than half as long as the laterals.

The male forceps is not remarkably different from that of *P. diaphanus* [loc. cit. fig. 5], but the inner appendages are very differently formed as shown in the drawing herewith presented.

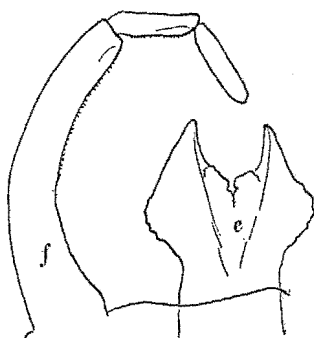


FIG. 22. *Potamanthus inequalis* n. sp.:  
f, forceps limb; e, inner appendages

The pinned submarginal skin of the same specimen is white: its fore femora are 10 mm long, and its setae (broken) are clothed with copious soft white pubescence.