

- (b) In small shallow bog pools with some flow of water.
- (c) In small steep outflow streams from bogs.

No other stonefly larvae have been found in biotopes (a) and (b) but *Spanio-cercoides* larvae inhabit the same areas in biotope (c).

Most of the material for this study was collected from 960–1,050 metres a.s.l. but the Denniston specimens were found in the usual biotopes at 600 metres a.s.l. in an unusually low area of sub-alpine vegetation which is referred to in Rigg (1962).

**MATERIAL:** 14 males, 11 females, 20 larvae, Mt. Augustus (960 metres a.s.l.), near Westport, 8/i/67, A. C. and I. D. McLellan leg. 6 males, 3 females, 40 larvae, Mt. Augustus, 15/i/67, A. C. and I. D. McLellan leg. 4 larvae, Denniston (600 metres a.s.l.), near Westport, 19/ii/67, I. D. McLellan leg. 8 larvae, Arthur's Pass, (960 metres a.s.l.) 26/ii/67, I. D. McLellan leg. 2 males, 4 females, and associated exuviae reared from larvae ex Mt. Augustus, 8/i/67. 11 larvae, Denniston, 4/iii/67, I. D. McLellan leg.

### *Notonemoura latipennis paludis*, n.subsp. Figs. 8, 13, 14.

**DIAGNOSIS:** Differs from *N. latipennis latipennis* by being brachypterous, wing extending to halfway of abdomen.

**DESCRIPTION OF IMAGO:** *Head:* Antennae dark brown with short segments. Eyes large and black. Ocelli prominent. A dark brown area extends from lateral ocelli to dorsal callosities which are black. Remainder of frons light brown with some dark spots anteriorly. Epicranium mottled dark and light brown. *Thorax:* Pronotum rectangular, wider than long, brown with the distinctive generic pattern of dark markings. Meso- and metanota brown with dark brown markings anteriorly and posteriorly. *Wings:* Grey with venation thickened and each wing shortened between apex and transverse cord. In each forewing there is a tendency for Sc to end without touching R<sub>1</sub>; a long macrotrichium arises from near base of R. *Legs:* Hind legs approx. three-quarters length of body and twice as long as fore legs. Mid and fore legs brown; hind legs brown with light brown bar medially on femora. *Abdomen:* Brown dorsally, with or without light brown markings medially. *Genitalia:* Male and female genitalia are indistinguishable from those of *N. latipennis latipennis*. See Figs. 2, 3, 4, 6, 7.

**DESCRIPTION OF LARVA (final instar):** Same as for *N. latipennis latipennis* apart from wingpads which are short and rounded apically. See Fig. 8.

Larvae of this subspecies were found in small shallow ponds in alpine bogs on sloping ground where there was some movement of water. No other species of stonefly larvae were seen in the same biotope.

**TYPE MATERIAL:** Holotype male, paratype female and larva deposited Entomology Division, D.S.I.R., Nelson. Paratype material consisting of 1 male, 1 female and larva deposited Canterbury Museum.

**OTHER MATERIAL:** 11 males, 4 females, 26 larvae in author's collection.

All material from 1,360 metres a.s.l. Temple Basin, Arthur's Pass, 1/i/67, I. D. McLellan, leg.

### *Notonemoura alisteri* n.sp.

**DIAGNOSIS:** Differs from the type species as follows. Imago with lighter parts of body and pterostigma of wings lime green. Legs almost uniformly light green and hind femora longer than those of type species. Ventral process of male without apical spine. Larva with lighter parts of body and legs green.

**DESCRIPTION OF IMAGO:** *Head:* Eyes large and reddish brown. Ocelli prominent. Frons brown with a few dark brown spots anteriorly. Epicranium mottled brown and dark brown. Antennae brown basally darkening towards tips. *Thorax:* Pronotum rectangular, wider than long, with dark brown pattern of markings characteristic of genus. Thoracic sternites brown with membranous areas lime green. *Legs:* Femora and tibiae green tinged with brown. Hind legs almost as long as body. *Wings:* Wing venation as for *N. latipennis*, Fig. 1. Forewings