

ART. XXX.—Notes on some New Species of New Zealand Musci: Genus *Phascum*.

By R. BROWN.

[Read before the Philosophical Institute of Canterbury, 2nd August, 1893.]

Plate XXXVIII.

THERE do not appear to be very many species of *Phascum* in New Zealand. During the course of a number of years I have carefully searched for plants belonging to this genus in all the localities I have visited, and have only been rewarded by the discovery of five species. Two of these are described in the Handbook of the Flora of New Zealand, the other three are new species. They are all small, tender, and inconspicuous plants, very liable to be overlooked, or taken for young plants belonging to other genera. The capsules of all these three species are immersed among the leaves, and in dry weather are entirely hid by the leaves incurving over and protecting them from the effects of the weather. This is no doubt an explanation of their non-discovery.

In this extremely interesting genus the capsules are indehiscent, there being neither valves nor operculum by which the spores can be shed; these can only be liberated by the decay of the capsule or its rupture through the spores germinating within.

This genus has been divided by botanists into a number of subgenera, only three of which are represented in New Zealand. They are found growing in patches, on damp clay and sandy banks, during the winter and early spring months, and are in fruit from June until November. After this period they are generally dried up by the hot winds prevailing about that time, and are then very difficult to find.

Phascum (Acaulon) apiculatum, Hooker and Wilson, is very common all over the Port Hills, and on the plains in the neighbourhood of Christchurch.

Phascum (Pleuridium) nervosum, Hooker, is also to be found in the same localities, but is not so common as the previous one.

***Phascum (Pleuridium) lanceolatum*, nov. sp.**

Plants perennial, small, growing in dense dark-green patches, monœcious. *Stem* short, $\frac{1}{8}$ in., branched. *Branches* fastigiate, $\frac{1}{8}$ in. *Leaves* spreading or erecto-patent, oblong, rounded at the apex, apiculate or oblong-lanceolate, acuminate. *Nerve* excurrent, forming an apiculus. *Margins* entire,

except at the apex, where they are minutely toothed by the excurrent cells. *Leaves*, when dry, become convolute and incurved over the capsule. *Areolæ* near the base oblong-quadrate; *upper*, round, dense. *Perichæatial* leaves nearly one-half longer, erect, acuminate, otherwise very similar to stem-leaves. *Fruitstalk* very short, erect. *Capsule* immersed, subrotund, cuspidate. *Calyptra* cucullate. *Perigonia* gemmaceous, at the base of the branches. *Antheridia* three to four. *Paraphyses* numerous.

Hab. Damp ground, in plantations near the River Avon; in fruit from June to November.

Phascum (*Pleuridium*) *longifolium*, nov. sp.

Plants perennial, small, pale-green, growing in small, loose patches. *Stem*, $\frac{3}{16}$ in.— $\frac{1}{4}$ in.; branched. *Branches* fastigate, about $\frac{1}{16}$ in. *Leaves* long, erecto-patent, linear-lanceolate, acute or apiculate. *Margin* entire. *Nerve* continuous, excurrent, forming the point of the leaf. *Areolæ*, *lower* long, narrow, quadrate; *upper* very small and dense; when dry convolute, and incurved over the capsule, completely hiding it. *Perichæatial* leaves longer, nearly erect, linear-lanceolate, acute or apiculate. *Nerve* continuous. *Fruitstalk* erect, very short. *Capsule* immersed, oval, unsymmetrical. *Beak* oblique, acute. *Calyptra* cucullate. Monœcious. *Perigonia* gemmaceous at the base of the branches.

Hab. Steep damp clay-banks, in warm situations, on the Port Hills, fruiting a month later than *P. lanceolatum*.

In this plant the leaves very much resemble in outline those of *P. lanceolatum*; they differ in being longer and more numerous, and in the cells at the base of the leaves being also much longer; but the cells at the upper half of this plant are one-half smaller and denser than the corresponding ones of *lanceolatum*; the fruitstalk of *longifolium* is much shorter, and the capsule has a different form.

Phascum (*Cyanea*) *arnoldii*.

Plants small, growing in a dense tuft, pale-green. *Stem* very short, branched. *Branches* fastigate, about $\frac{1}{8}$ in. *Leaves* close-set, upper longest, sheathing near the base, subconvolute, straight or slightly falcate, recurving or incurved, nerved. *Perichæatial* leaves shorter than the upper ones, otherwise very similar. *Fruitstalk* short, curved. *Capsule* immersed among the leaves, rotund. *Beak* short, straight, and narrow. *Calyptra* small, cucullate.

Hab. Moa Creek (one of the small tributaries of the Wilberforce), growing on rocks together with *Andreas* and dark-brown *Hepaticæ*.

Specimen plant deposited in Christchurch Museum.

EXPLANATION OF PLATE XXXVIII.

Phascum (Pleuridium) lanceolatum.

Fig.

1. Stem leaves.
2. Perichæatial leaf.
3. Capsule.

Phascum (Pleuridium) longifolium.

1. Stem leaf.
2. Perichæatial leaf and capsule.
3. Calyptra.

Phascum (Cynæa) arnoldii.

1. Lower stem leaves.
2. Middle stem leaves.
3. Upper stem leaf.
4. Perichæatial leaf and capsule.
5. Calyptra.

ART. XXXI.—On *Lessonia variegata*, J. Ag., Mscr.

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Plates XXXIX., XL.

IN the "Flora Novæ-Zelandiæ," vol. ii., p. 217, *Lessonia fuscescens* (Bory, Voy. Coq., p. 75) is put down as indigenous to New Zealand; and on the authority of Lyall its habitat is given as Lyall's Bay, Cook Strait. In the Handbook, vol. ii., p. 656, it is stated also to occur on the east coast—i.e., of the North Island—Colenso being the authority. Unfortunately I have not access to the original description of the plant in the Voyage of the "Coquille," and no synopsis of the species is given in the "Flora Novæ-Zelandiæ" or in the "Flora Antarctica." In the latter work, however, it is figured, vol. ii., 167, 168, and 171D; and in the "Handbook of the New Zealand Flora" there is a short account of the species. It is more fully described in Agardh's "Species Algarum," vol. i., p. 151.

The specific description in the Handbook, which agrees well with the figures in the "Flora Antarctica," is as follows:—" *L. fuscescens*: Gregarious, forming submarine miniature forests, trunks sometimes 10ft. long, cylindric, as thick as the thigh, bearing towards the top short branches with