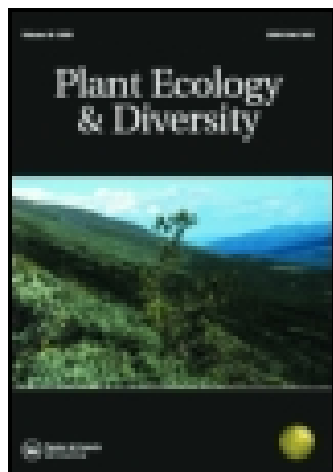


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### II. Notes on some New and Rare Mosses gathered in Ross-shire and Inverness-shire in July, by Mr Charles Jenner and Mr Charles Howie

Mr Charles Howie

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with his relations, and their own sense of the loss they have sustained."

I had always much pleasure in my intercourse with Mr Baddeley, and regarded him as a truly Christian student. During his illness his father told me that he expressed his reliance on Christ, and his assured hope of God's mercy through Him.

We have lost in Mr Baddeley one of our most promising graduates, and we have been deprived of one who would, I doubt not, have distinguished himself in after life in India, to which country he was about to proceed.

Truly God's ways are not as our ways. "We bow under the rod, and say, Thy will be done."

II. *Notes on some New and Rare Mosses gathered in Ross-shire and Inverness-shire in July, by Mr Charles Jenner and Mr Charles Howie.* By Mr CHARLES HOWIE, with Drawings and Descriptions by Professor SCHIMPER. Communicated by Mr SADLER.

In July 1867 I made a botanical excursion in company with Mr Jenner over a part of Inverness-shire and Ross-shire, when, in addition to the mosses more generally distributed over our southern counties, we gathered some sufficiently interesting to induce us to bring them under the notice of the Society. Several are new to Britain, and one, a *Didymodon* (which we are assured by Professor Schimper), is new to Europe, and consequently a very valuable addition to our British flora.

One prominent feature of the bryology of the districts we visited was the ever-recurring forms of *Dicranaceæ*, as represented by specific forms of *Dicranum* and *Campylopus*. We may enumerate *Dicranum Blyttii*, *D. Starkii*, *D. falcatum*, *D. Scottianum*, and *D. fuscescens*. The genus *Campylopus* was ever present in some of its forms throughout the districts we traversed. Some of them at first sight were obscure and difficult to determine, as *C. longipilus*, growing in swampy bogs, presenting different shades of colour and habit; but on closer examination they were readily distinguished. *C. flexuosus* forms large clumps among the heath, *C. torfaceus* and *C. fragilis* among the lower rocks;

and as we climbed the mountain summits we gathered *C. alpinus*, and down among the deep gullies of Wester Ross we gathered *C. setifolius*, where we also collected the more recently discovered *Dicranodontium aristatum* of Schimper. Among the Splachnaceæ, *Splachnum sphaericum* and *Tetraplodon Mniodes* are very abundant, forming large tufts of surpassing beauty in full fruit. To illustrate their abundance in this part of the country (Ross-shire), I may state, that when travelling on the top of the mail-coach, large patches were readily recognised at considerable distance from the road among the partially heath-clad bogs. We secured them on our return as pedestrians.

On the mountains at the head of Loch Torridon, at an elevation of about 2000 feet, we had the pleasure of finding *Bryum Muchlenbeckii* on wet rocks, forming large tufts, presenting even, at first sight, a distinct appearance from *Bryum alpinum*, to which it was considered to bear some relation. We were glad to be able thus to give a determinate station in Britain for this plant, for although it is recorded in Wilson's "Bryologia Britannica," it was understood by the author to be on doubtful authority. We submitted the plant for verification to Mr Wilson, and his judgment has been confirmed by Professor Schimper. The question, therefore, as to this moss having a claim to be retained in the British flora may be held now as settled. Another moss found by us in two stations, viz., in the east and west of Ross-shire, at considerable elevation, growing in deep pools, was *Hypnum fluitans* var. *purpurascens*. This has been determined by Professor Schimper, who informs us that he has recently received it also from the Norwegian Alps and from Switzerland. This form of *H. fluitans* may yet prove common on our more lofty mountains.

The next and last plant to which, on this occasion, I beg to call your attention, is the new species, *Didymodon Jenneri*, Sch., to which I have already referred. This very distinct species is an interesting one, not only to British bryologists, but also to bryologists throughout the world. The four *Didymodons* constituting that genus in "Bryologia Britannica," are all that occur in "Bryologia Europæa;" and in Sullivan's "Mosses of America," the same species, with the exception of *Didymodon flexifolius*, only

occur. The few species representing this genus being so widely distributed, heightens the importance of this addition from our Scottish Alps. I need not enter into the detailed characters of the species—the form, serrature, and nervation of its leaves, their position on the branched stem, the structure of the peristome, the operculum, the inflorescence—as these are accurately given by Professor Schimper in his elaborate drawings and descriptions, which are subjoined. I have done myself the pleasure, with the assent of Professor Schimper, to name this last addition to our cryptogamic flora, after my friend and companion, Mr Jenner, whose valuable and continued labours in the more obscure departments of botany entitle him to this mark of respect; and I have no doubt you will consider this a well-deserved compliment to the president of our Society. I cannot too highly express my obligation to Professor Schimper for the deep interest he has shown; and as his beautiful drawings will be reproduced in the Society's Transactions, he will have conferred a benefit on all the members, as well as on science in general.

*Didymodon Jenneri*, Sch.: a new species found in Ross-shire by Mr CHARLES HOWIE and Mr JENNER, in July 1867. Verified and delineated by Professor SCHIMPER. (Plate V.)

#### *Description.*

*Cæspites* molles, virides inferne fuscescentes.

*Plantæ* sesqui- et bi-unciales, pluries dichotome-ramosæ, fastigiatae, parce radiculosæ.

*Folia* ex erecta basi patentia, sursum curvata vel divaricata, flexuosa, sicca, cirrhato-crispata, longa, linealilanceolata, basi subamplectante, concava, pallida, dehinc ad apicem subcomplicato-carinata, remoteque irregulariter serrata, haud papillosa, gramineo-viridia; costa semicylindrica usque versus apicem producta, extremitate superiore dorso hirta. Foliorum rete basilare laxum rectangulum, hyalinum, supra-basi-

#### *Translation.*

*Tufts* soft; green; brownish-black below.

*Plants* from an inch and a half to two inches in height; most of them dichotomously branched; fastigiate; with but few radicles.

*Leaves* spreading out from an erect stem; curved upwards, or divaricate; flexuous; dry; cirrhately-wavy; long; linear-lanceolate, with the base partly embracing the stem, concave, and of a light colour; from thence to the point carinate with a slight twist, and irregularly serrate at intervals; not papillose; of a grass-green hue; with a semicylindrical nerve prolonged on towards the tip; covered with hair

lare minutum, quadratum, chlorophyllo obrutum.

*Flores* in eadem caulis extremitate conjuncti; masculus monophyllus, antheridiis perpaucis magnis; femineus oligophyllus, foliis involucribus caulinis similibus, archegoniis paucis, longistylis; paraphysibus valde elongatis, exacte filiformibus, hyalinis.

*Fructus*: perichætium vix distinctum, e foliis compositum subarcuatis, basi paulo latioribus et tenuioribus, cæterum, caulinis similibus. *Vaginula* longa, cylindracea. *Capsula* in pedicello pallide-lutescente, leniter cernua, ovali-oblonga, mollis, pallide-fuscescens, deopercalata vacua, erecta, truncate-oblonga. *Operculum* obtuse brevirostrum, basi erosa rubellum, cæterum pallidum. *Annulus* simplex, persistens. *Peristomii* dentes lineali-lanceolati, usque ad medium bifidi, cruribus alternatim longioribus et brevioribus, subulatis, transversim articulati, ad medium usque aurantio-fusci, dehinc pallidi, minuto-granulosi. *Sporæ* minutæ, minuto-punctulatæ, ochreo-virides.

on the back at the upper extremity. The net-work at the base of the leaves is loose, with a rectangular arrangement, and transparent; above the base it is minute and in squares, and, as it were, buried in chlorophyll.

*Flowers*, male and female—growing together at the same end of the stem. Male, monophyllous, with its antheridia very few and large. Female, oligophyllous, with the involucrial leaves like those of the stem. The Archegonia few and with long styles; the paraphyses very long, absolutely filiform and translucent.

*Fruit*. — Perichætium scarcely distinct; consisting of leaves that are slightly curved and a little broader at the base, and more slender than those of the stem, but in other respects like them. *Vaginula* long and cylindrical. *Capsule* on a pedicel of a pale yellowish colour; slightly drooping; oval-oblong: soft; of a pale brownish-black hue; after the operculum falls off it is empty, erect, truncate-oblong. *Operculum* with a short obtuse rostrum, reddish in the base which is irregularly toothed; elsewhere of a pale colour. *Annulus* simple, persistent. Teeth of *Peristome* linear-lanceolate; bifid as far as the middle; crura alternately long and short, and subulate; transversely jointed; of an orange-brown colour as far as the middle; from that point pale and minutely granular. *Spores* small, minutely punctulate, of a yellowish-green colour.

### *Tabulæ explicatio.*

Fig. 1. Planta magnitudinis naturalis.

Fig. 2. Pars ejusdem sublente augmentata.

Fig. 3. Folium inferius.

Figs. 4, 5, and 6. Folia superiora.

Fig. 7. Rete basillare.

Fig. 7-b. Cellulæ ejusdem magis augmentatæ.

Fig. 8. Rete apicale.

Fig. 8-b. Folia acumen magis augmentatum.

Fig. 8-b'. Cellulæ ejusdem, augm. 200.

Fig. 9. Flos; A, folium perigoniale; B, folium perichætiale.

### *Explanation of the Figures.*

Fig. 1. The plant of the natural size.

Fig. 2. Part of the same slightly magnified.

Fig. 3. A lower leaf.

Figs. 4, 5, and 6. Upper leaves.

Fig. 7. The net-work of the base.

Fig. 7-b. Cells of the same, more magnified.

Fig. 8. The net-work of the point.

Fig. 8-b. The point of the leaf more magnified.

Fig. 8-b'. Cells of the same magnified 200.

Fig. 9. Flower—A. Leaf of perigonium. B. Leaf of perichætium.

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Fig. 10. Fructus.

Fig. 11. Operculum fragmentum basilare augm. 100.

Fig. 12. Pars peristomii et capsulae, augment. 120; *a*, annulus.

Fig. 13. Dentis pars inferior magis augmentata.

Fig. 14. Pars summa.

Fig. 15. Sporæ.

Fig. *z*. Foliorum segmenta transversalia.

Fig. 10. Fruit.

Fig. 11. Operculum; a piece of the base magnified 100.

Fig. 12. Part of peristome and capsule magnified 120. *a*. Annulus.

Fig. 13. Lower part of one of the teeth more highly magnified.

Fig. 14. Extremity of one of the teeth more highly magnified.

Fig. 15. Spores.

Figures *z*. Transverse sections of the leaves.

### III. *On a peculiarity in the Structure of the Stem of Hedera Helix.* By W. R. M'NAB, M.D., Edinburgh.

The difficulty experienced in obtaining thin sections of vegetable tissues prevents to a great extent the employment of the higher powers of the microscope in their investigation. It is apparently impossible to cut sections beyond a certain degree of thinness, and artificial means must be adopted to render the sections more transparent before they can be examined satisfactorily under high powers. Canada balsam was employed by the older microscopists for this purpose, but there are so many objections to its use that very few would now think of spoiling a good section of wood by preserving it in balsam. The sections so prepared are in general too transparent, and much of the structure is lost. Polarised light often brings much of this apparently lost structure back to view; but the employment of polarised light with higher powers is difficult unless powerful illumination can be obtained. Staining the tissues with iodine or magenta has also been of some service. Perhaps the best plan is that which has been so very successfully adopted by Dr Beale in investigating the structure of the animal tissues with very high powers. It consists in the employment of glycerine as a preservative. Sections placed in glycerine become transparent enough to be easily examined with a power of 600 diameters, while the detail is not obliterated, as is the case when Canada balsam is employed. By tinting the sections with a solution of acetate of mauvine in glycerine, or of carmine in ammonia and glycerine, the differences of the texture become very evident.

While examining sections of the stem of the ivy, which

