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IV. On a Mode of Protecting Timber from Fire

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On the hills near Habbie's How *Racomitrium canescens* was seen in several places covering the ground, almost to the total exclusion of all other vegetation, except *Cornicularia aculeata*, which is not uncommon in sub-alpine districts. *Leucobryum glaucum* occurred even on some of the highest parts, associated with a stunted form of *Sphagnum cymbifolium*.

On the detached rocks near Habbie's How, *Andrea Rothii* is met with in considerable abundance, rather a rare plant, at least in the neighbourhood of Edinburgh.

At the lower fall, *Racomitrium aciculare*, *R. fasciculare*, *Hypnum plumosum*, and many other good mosses are seen. The little spot between the two falls may be justly termed a cryptogamic garden. *Blindia acuta* occurs here in great profusion, also *Tortula tortuosa*, *Bartramia Oederi*, *Dicranum fuscescens*, *Bryum zierii*, *B. crudum*, *Leskea subrufa*, *Encalypta ciliata*, *Trichostomum flexicaule*, *Didymodon rubellus*, *Gymnostomum rupestre*, *Anæctangium compactum*, *Zygodon Mougeotii*, *Neckera crispa*, *Blasia pusilla*, *Cynodontium Bruntoni*, and *Hypnum ochraceum* which is new to the Edinburgh flora.

It is not unworthy of notice, that all these mosses, without exception, occur on the rocks facing the north, those facing the south being almost sterile. Besides these rarities, other mosses were observed, many of a more common nature, such as *Bryum cæspiticium*, *B. capillare*, *B. pallens*, *Dicranum pellucidum*, *Hypnum ruscifolium*, *H. rutabulum*, *H. molluscum*, and *H. loreum* in fruit, *Atrichum undulatum*, and *Isoetecium alopecurum*, the latter occurring sparingly in a fertile state. A little beyond the upper fall, *Bryum pseudo-triquetrum* was found, and in the water abundance of *Fontinalis antipyretica*, bearing its curious sessile capsules.

IV. On a Mode of Protecting Timber from Fire. By F. A. ABEL, Esq. Communicated by Dr CLEGHORN.

After mentioning various methods which have been adopted to render wood less combustible, by saturating it with solutions of phosphate of soda, and muriate or sulphate of alumina and chloride of calcium, the author remarks, that all that can be reasonably expected from the most

efficient protective coating or impregnating material is—
 1. That it should considerably retard the ignition of wood exposed for some length of time to the effects of a high temperature, or of burning matter in its immediate vicinity. 2. That if the vapours which the wood emits by continued exposure to heat become ignited, the flames thus produced shall not readily affect the fibre of the wood, and shall cease almost directly on the removal of the wood from the source of heat. 3. That the prepared surfaces of wood, when in actual contact with burning unprepared wood, shall have little tendency to ignite or cause the fire to spread. The plan proposed is to impregnate wood with silicate of soda, and to coat its surface with a silicate. The impregnating of the wood is effected by putting it in a solution of the silicate. After an interval of at least two hours, a coating of thick lime wash is applied over the silicate ; and finally, on the following day, a strong solution of the silicate is applied over all. In this way, a protective covering is given to the wood. The process may be used with benefit in the case of timber employed for wooden huts.

V. *Observations on Vegetable Morphology*. By J. M.
 NORMAN, M.D., Christiania.

Dr Norman's paper contains careful observations made on the stipules and bracts or glands of *Cruciferae*, on the stipules of *Lotus*, *Dorycnium*, and *Bonjeania*, on the stipules of *Onagraceae* and of *Lythraceae* ; also some observations on *Chloranthaceae*, on *Anchusa ochroleuca*, on a species of *Lupinus*, on *Trifolium pratense*, and *Aquilegia vulgaris*.

The following are the conclusions at which he arrives :—

The leaves of the greater part of the *Cruciferae* are accompanied by rudimentary glanduliferous stipules. The stipules are usually two in number, one on the right and the other the left of the axil. Sometimes a whole series of axillary glands represent one stipule. In general, the stipules are situated on the part between the stem and the upper surface of the leaf, and are so placed as to appear lateral. Sometimes they are inserted on the leaf