

# REPORT ON THE LOCAL MOSS FLORA.

By H. NAPIER M.A.

In writing a report on the Mosses from the neighbourhood of Oxford I must plead a twofold excuse: in the first place, the long time that has elapsed since any list of them has appeared, and in the second place, the hope of encouraging amongst local workers a branch of botany that has been so much neglected in recent years.

Mr. G. C. Druce has pointed out to me the probable fact that a moss flora is far from being a permanent one; the small size of the spores renders them capable of being carried great distances by the wind, and from the nature of their habitat, most of them are peculiarly susceptible to changing conditions.

Striking instances of this want of permanency are numerous - especially amongst the annual species - and it may be of interest to cite a few of them. Thus *Bryum murale*, which has a particular penchant for new mortar on walls, often disappears from localities where it has grown for two or three years in succession. *Tortula cavifolia* sometimes turns up in the greatest abundance on newly mud-capped walls for a season to leave no trace behind. *Physcomitrium*, and a host of others, which grow only on newly-turned soil, are equally sporadic in their appearance.

A great number, too, are gradually being lost to us by the cultivation of heaths and the draining of bogs, and it will not be many years, I fear, before several of these lingering species will be quite extinct. Shotover, formerly a haunt for so many rare things, yields few of the treasures of by-gone days, and we must go further and further afield to obtain such mosses as *Leucobryum*, *Polytrichum commune*, *Aulacomnium*, *Tetraphis*, *Webera nutans*, and many of the *Bryums*.

To turn from this aspect of the question to another one - and a more cheerful one to the lover of plants - there can be no question that new species also appear from time to time - not merely species which have been overlooked, but which probably are true arrivals from more distant regions. The broken bare rock walls of quarries are pre-eminently adapted to catch and hold the wandering spores, and newly-turned banks of soil also offer advantages which favour the development of the young moss plant.

Here a special word must be said for the exceedingly interesting Holton Stone Pits. No better example could be found of the statement we have just made. No less than five species have been recorded from this locality which have not been found in any other part of either Oxfordshire or Berkshire, and several more are not known for many miles around. But what is perhaps more extraordinary about these mosses is this - that two, at least, have never been found in fruit in Great Britain, and two more of them but very rarely.

This fact brings us to another very interesting point about mosses in general: that whereas many species, both common and rare, are to be found fruiting abundantly in season, there are others which are hardly to be obtained in fruit at all, and amongst these are many of the most familiar kinds: *Hypnum cuspidatum*, which abounds everywhere in damp meadows - *Brachythecium purum*, which is almost equally general - *Hylocomium squarrosum* and several others are to be counted amongst them. In *Barbula sinuosa*, not uncommon on walls and trees - *Tortula papillosa*, not uncommon on trees, and *Orthotrichum obtusifolium*, the fruit is entirely unknown with us; and in fact, in the case of *O. obtusifolium*, it has only yet been discovered in Australia. The persistence of such mosses can be accounted for in two ways.

1. In many kinds gemmae, generally of a spherical form, are produced which, when they fall on favourable ground, give rise to new plants. In *Tortula papillosa* these gemmae are found in great abundance along the nerves of the leaves; in *Barbula rigidula* and others they occur in the axils of the leaves and form a valuable feature of identification; and again in others we meet with them on specialised stems, as in *Tetraphis pellucida*.
2. Owing to vegetative increase, many species will continue long after the plants have ceased to fruit. We meet with a remarkable case of this in *Sphagnum*, which grows indefinitely upwards, the lower parts gradually dying away and forming those great deposits of peat with which we are familiar in many districts. The stems of *Sphagnum* have sometimes been traced for many feet, and a specimen seven feet in length has been recorded from near Edinburgh.

These facts all tend to suggest that possibly many mosses which practically only occur in a barren state with us, may at one time have fruited much more freely than now, when climatic conditions were more

favourable - when nearly all the land which now is cultivated - meadows and fields, copses and woods - formed vast extents of unreclaimed marsh, swamp and forest. Humidity above all things is an essential to the highest development of a moss-plant. The species we have already mentioned are yet to be found fruiting where they live under conditions approximating more nearly to what they used to be. On the Ruskin Plot and in a few other spots with us - land which has never been touched - *Hypnum molluscum*, *H. cuspidatum* and others are still fertile. And we can sometimes see these changes going on; to take a local case, *Hypnum falcatum* is still to be found fairly profusely in Bullingdon Bog; but it is now sterile where as late as the middle of the 19th century it fruited freely. Owing to drainage, the Bog is gradually drying up, and it will not be long before many of its present plants will be completely lost to us.

However, there is probably another factor at work to account in part for these changes; that is, the history of the species itself. At the present time a great deal of interesting material is being brought to light by biologists upon this point, and it is not at all unlikely that we may find that we are here dealing with a problem of the same nature. While accepting all such conclusions with the reserve due to theory, we may compare the remarkable discovery made by Prof. H. de Vries in the case of a species of *Oenothera* which he found to be giving rise to new species by direct mutation, and this has suggested that at some period or another of its history - the period of its highest vigour - almost every plant or animal may have been in the same condition. In the same way, it is possible, that in the case of the present group, a non-fruiting kind may point to its having passed the epoch of its maximum vitality; and this is more especially suggestive in the case of those species where the normal type of reproduction has given place to an asexual mode of increase.

To return to the consideration of our local moss flora, I feel that there is an apology due from me for offering to the Ashmolean Natural History Society a list which is so incomplete as mine. It is the result of only nine months' collecting, a period which is entirely inadequate for the investigation of the mosses even of our own immediate neighbourhood. Collectors will undoubtedly find many kinds which are not given here, and in addition, the districts of the chalk hills in the South and the heaths of the North have hardly been worked at all; there is not a shadow of doubt that work in those parts would provide an abundant harvest of rare kinds and of species new to these counties to an enterprising collector. Mosses are not, on the whole, conspicuous or striking - they do not always catch the eye, and a close and detailed search over almost every inch of likely ground is almost a necessity for a complete list.

For the benefit of beginners like myself, I may mention that though the difficulties that will at first be encountered are great, at first sight insuperable, they are not in reality as dismaying as they appear, and there is no greater satisfaction than the feeling that they are overcome. A reasonable amount of keenness and patience - together with a good microscope - are almost all that are essential; and my services, such as they are, will always be freely placed at the disposal of the Society.

As far as possible, I have tried to make my list a reliable one, and have therefore omitted a number of records where the identification has not been quite certain: and I hope in future reports to be able to add further material. For reasons which will be clear from what I have already said, I have included all old records which I have verified, and in addition have made mention of the fact where some rarer species seem to have disappeared.

Records for mosses from Mr. Boswell's List (Druce's Flora of Oxfordshire, 1885) are indicated by a B., species new to the district by an asterisk \*.

## **Sphagnaceae.**

### ***Sphagnum.***

*S. cymbifolium*. Powder Hill Copse, B.; Bucklebury Common.

*S. subsecundum*. Powder Hill Copse, rare, B.; Bucklebury Common.

*S. acutifolium*. Cothill; Bucklebury Common. Fruits freely.

\**S. cuspidatum*. Bucklebury Common.

## **Tetraphidaceae.**

### ***Tetraphis.***

*T. pellucida.* Bucklebury Common.  
Polytrichaceae.

### ***Catharinea.***

*C. undulata.* Common in woods and on shady hedgebanks. Fruiting freely.

### ***Polytrichum.***

*P. aloides.* Bagley Wood, B.; Powder Hill Copse; Fruiting freely.

*P. piliferum.* Bucklebury Common.

*P. juniperinum.* Shotover; Powder Hill Copse. Fruiting near Mongewell and on Bucklebury Common.

*P. formosom.* Common on sandy soil, Shotover; Powder Hill Copse; Bucklebury Common; Marston Copse, &c. Generally fruiting fairly freely.

*P. commune.* Cothill ; Bucklebury Common, abundant.

## **Dicranaceae.**

### ***Pleuridium.***

*P. subulatum.* Shotover, B. Fruits freely.

### ***Ditrichum.***

*D. flexicaule.* Holton Stone Pits, B.

### ***Ceratodon.***

*C. purpureus.* Common, though not abundant. Fruiting freely.

### ***Dicranella.***

*D. heteromalla.* Common on sandy banks in woods; garden ground near Headington; Bayswater Mill; Headington Wick Copse; Shotover. About Pangbourne, &c. Fruits freely.

*D. varia.* Bullingdon Bog - Miss Claridge. West side, Shotover; Holton Stone Pits, &c. Fruits freely.

### ***Campylopus.***

*C. pyriformis.* Cothill.

### ***Dicranum.***

*D. scoparium.* Shotover; Bagley Wood; Mongewell Woods, &c.

### ***Leucobryum.***

*L. glaucum.* Bucklebury Common.

## **Fissidentaceae.**

### ***Fissidens.***

*F. pusillus.* Shotover. Fruits freely.

*F. bryoides.* Below Shotover; Bagley Wood, &c. Fruits freely.

*F. crassipes.* Sandford Lasher; along Canal in several places; Bayswater Mill, small. Fruits freely.

*F. adiantoides.* Bullingdon Bog; Cothill; Godstow. Fruiting fairly freely

*F. decipiens.* Holton Stone Pits. Fruiting not very freely.

*F. taxifolius.* Common and general in sandy places. Often found in fruit, as on Shotover and near Stanton St. John.

## **Grimmiaceae.**

### ***Grimmia.***

*G. apocarpa.* Common and general on walls and stones. Fruits abundantly.

*G. pulvinata.* Very common and general. Fruits abundantly.

*G. orbicularis.* Near Headington. Fruits abundantly.

## **Tortulaceae.**

### ***Phascum.***

*P. cuspidatum.* Common and general on newly-turned ground. Fruits freely.

### ***Pottia.***

*P. truncata.* Wytham Woods. Fruits freely.

*P. minutula.* Menmarsh. Fruits freely.

### ***Tortula.***

*T. cavifolia.* Rather common on mudcapped walls. About Headington and Bayswater Farm ; Stanton St. John. Fruits freely. Not as common as it used to be when Mr. Boswell spoke of this species as a striking feature of the walls of Oxfordshire and Buckinghamshire.

*F. lamellata.* St. Clement's; Stanton St. John; Marston. Fruits freely.

*T. ambigua.* Common on mudcapped walls. Fruits freely.

*T. muralis.* Abundant on walls, fruiting abundantly; var. *rupestris.* Mesopotamia: Lock near Wolvercote.

*T. subulata.* Foxcombe Hill. B. Fruiting.

*T. ruralis.* Abundant on thatch and sometimes on slate roofs; on dry banks. Stow Wood, B.

*T. intermedia.* Common on walls.

*T. laevipila.* Common on trees. Often fruiting.

*T. laitfolia.* Not uncommon. Mesopotamia and the Parks; Addison's Walk; Sandford; Menmarsh. .

*T. papillosa.* Not uncommon. Near Yarnton; Menmarsh; N. Hinksey; Cothill. Both these last species which are given as rare by Mr. Boswell appear to have considerably extended their range.

### ***Barbula.***

*B. rubella.* Sandford; Wytham Woods; Headington Hill. Fruiting freely.

*B. tophacea.* 'W. side. Shotover, small, fruiting abundantly.

*B. fallax.* Holton Stone Pits: W. side, Shotover, &c.

*B. vinealis.* Rather common and general.

*B. sinuosa.* On trees at Menmarsh: Addison's Walk: Mesopotamia (?) ; Sandford.

*B. revoluta.* Rather common.

*B. convoluta.* Rather common.

*B. unguiculata.* Very common and general. Fruits freely.

### ***Weissia.***

*W. microstoma.* Above Bayswater Mill. Fruits freely.

*W. viridula.* W. side, Shotover; Holton Stone Pits; Bagley Wood. Fruits freely.

*W. tenuis.* Holton Stone Pits. Fruits freely.

### ***Trichostomum.***

*T. crispulum.* Holton Stone Pits, B. Rather scarce.

*T. inclinatum*. Holton Stone Pits, B.

Both these species, which Mr. Boswell records as growing sparingly here in the seventies, now occur in fine large tufts; the latter is abundant over a small area. But *Pleurochoete squarrosa*, which was recorded as growing with them, seems to have disappeared.

***Cinclidotus*.**

*C. fontinaloides*. Sandford Lasher, B.; Godstow; by the Canal near Wolvercote.

*C. Brebissoni*. On the root of a tree, Addison's Walk.

**Encalyptaceae.**

***Encalypta*.**

*E. vulgaris*. Holton Stone Pits. Fruits freely.

*E. streptocarpa*. Holton Stone Pits, B.: Quarry near Elsfield, fine.

**Orthotrichaceae.**

***Zygodon*.**

*Z. viridissimus*. Sandford Lasher; Menmarsh; Shotover; N. Hinksey; Wytham Woods.

***Orthotrichum*.**

*O. saxatile*. Headington, Marston, &c.; Rather common. Fruits freely.

*O. cupulatum*. Neat Cuddesdon; Canal near Wolvercote. Prefers damper situations to the last. Fruits freely.

*O. Lyellii*. Menmarsh; Cothill.

*O. affine*. Common and general on trees. Fruits freely.

*O. diaphanum*. Common and general on both trees and stones. Fruits freely.

**Funariaceae.**

***Physcomitrella*.**

*P. patens*. In abundance on newly-turned soil by road-side near N. Hinksey. In foliage scarcely distinguishable from small forms of the next. Fruits freely.

***Physcomitrium*.**

*P. pyriforme*. Rather common. Marston Copse; Menmarsh; Hinksey Hill; Marston Meadows. Fruits freely. .

***Funaria*.**

*F. hygrometrica*. Very common and general. Fruits freely.

**Meesiaceae.**

***Aulocomnium*.**

*A. palustre*. Cothill; Bucklebury Common.

**Bartramiaceae.**

***Philonotis*.**

*P. calcarea*. Cothill.

**Bryaceae.**

***Webera*.**

*W. nutans*. Bucklebury Common. Fruits freely.

*W. carnea*. Bullingdon Bog. Fruits freely.

***Bryum*.**

*B. bimum*. Bullingdon Bog, B.; Cothill, fruiting, &c. Very near the next.

*B. pseudotriquetrum*. Holton Stone Pits. Fruiting.

*B. intermedium*. W. side, Shotover, B. Fruits freely.

*B. caespiticeum*. Common and general. Fruits freely.

*B. capillare*. Common and general. Fruits freely.

*B. atropurpureum*. Rather common. Above Bullingdon Bog; Barton; Marston, &c.

*B. argenteum*. Common and general. Fruits freely.

### ***Mnium*.**

*M. affine*. Common in a barren state. Shotover; Marston Ferry; Bagley Wood; Cothill, &c.

*M. undulatum*. Common and general.

*M. hornum*. Common in woods. Fruiting at Bagley Wood, Powder Hill Copse and Cothill.

*M. punctatum*. Headington Wick Copse; Marston Copse; Cothill, abundant and fruiting.

### **Fontinalaceae.**

#### ***Fontinalis*.**

*F. antipyretica*. Common in the larger streams and in ponds.

### **Cryphaceae.**

#### ***Cryphaea*.**

*C. heteromalla*. Shotover. Fruits freely.

### **Neckeraceae.**

#### ***Neckera*.**

*N. complanata*. Rather common; Marston: Elsfield; Hinksey, &c.

### **Leucodontaceae.**

#### ***Leucodon*.**

*L. sciuroides*. Menmarsh; Holton Stone Pits; Wytham Woods; N. Hinksey.

#### ***Thamnum*.**

*T. alopecurum*. Common and general.

### **Leskaceae.**

#### ***Leskea*.**

*L. polycarpa*. Rather common on trees by water. Mesopotamia; The Parks; near Yarnton; Sandford Lasher; N. Hinksey; near Wolvercote, &c. Fruits freely.

#### ***Anomodon*.**

*A. viticulosus*. Rather common; Marston Road; Holton Stone Pits; N. Hinksey, &c.

#### ***Thuidium*.**

*T. abietinum*. Holton Stone Pits, B. Abundant.

*T. tamariscinum*. Common and general in woods.

\**T. recognitum*. Probably rather common but overlooked. Near Stanton St. John and Stow Wood.

### **Hypnaceae.**

#### ***Climacium*.**

*O. dendroides*. Bullingdon Bog; Stow Wood.

#### ***Cylindrothecium*.**

\**C. concinnum*. Holton Stone Pits, amongst grass.

### ***Camptothecium*.**

*C. sericeum*. Common and general. Fruiting on tiles near Stow Wood; on walls at Stanton St. John, and on trees near N. Hinksey.

*C. lutescens*. Common on calcareous soils, and on stones near Godstow.

### ***Brachythecium*.**

*B. glareosum*. Near Bayswater Mill; Holton Stone Pits. fine (?).

*B. albicans*. Common on thatch, sometimes walls. Stanton St. John; N. Hinksey, &c.

{*B. salebrosum*. Menmarsh (?)}

*B. rutabulum*. Abundant and general. A very variable moss. Fruits freely.

*B. velutinum*. Rather common and general. Fruits freely.

*B. purum*. Very common and general.

### ***Eurynchium*.**

*E. piliferum*. Headington Wick Copse; Stonesfield, Mr. Bradley.

*E. speciosum*. Fruiting near Wolvercote and by Addison's Walk. Difficult to determine in a sterile state.

*E. praelongum*. Abundant and general. Not very common in fruit as at Marston Copse; Wytham Woods; Bagley Wood.

*E. swartzii*. Rather common. Rare in fruit. Sparingly on Woodperry Hill and near Wolvercote. More freely by Bagley Wood.

*E. pumilum*. Near Marston Copse.

\**E. curvisetum*. Bayswater Mill. Fruiting freely. Before recorded as *E. Teesdalei*.

*E. murale*. Rather common. Headington Hill; Wolvercote, &c. Fruits freely.

*E. confertum*. Rather common and quite general. Headington Hill; Stanton St. John, &c. Fruits freely.

*E. myosuroides*. Near Mongewell Woods.

*E. myurum*. Godstow; N. Hinksey.

*E. striatum*. Rather common. Marston Copse; Cothill, &c.

*E. rusciforme*. Rather common and fruiting freely Sandford Lasher; Wolvercote; Godstow: Bayswater Mill: Bradfield &c.

### ***Plagiothecium*.**

*P. denticulatum*. Common and general. Fruiting rather freely. .

Var. *majus*. Marston Copse, fruiting; Shotover. &c.

\**P. elegans*. Shotover.

### ***Amblystegium*.**

*A. serpcns*. Common and general. Fruiting freely. A rather variable moss.

*A. filicinum*. Common and general by water. On Headington Hill. Fruiting near Stow Wood.

### ***Hypnum*.**

*H. riparium*. Common by water. Fruiting freely. Var. *longifolium*. Near Marston Copse, sterile.

*H. chrysophyllum*. Holton Stone Pits; near Stanton St. John.

*H. stellatum*. Bullingdon Bog; Cothill, fruiting. A very variable moss.

*H. aduncum*. W. side, Shotover; Holton Stone Pits; Near Wolvercote.

\**H. revolvens*. Cothill.

*H. commutatum*. Near Stow Wood, B.

*H. falcatum*. Bullingdon Bog.

*H. cupressiforme*. Common and general. Fruiting freely. Several varieties are also found.

*H. molluscum*. Rather common. Stow Wood; Holton Stone Pits &c. Fruiting at Cothill.

*H. palustre*. Lock by the Canal at Wolvercote, B.

*H. cordifolium*. Pond near Yarnton, and near Bradfield.

*H. cuspidatum*. Very common and general. Fruiting at Cothill.

*H. Schreberi*. Boar's Hill; Bucklebury Common.

***Hylocomium***.

*H. splendens*. Holton Stone Pits; Boar's Hill; Bucklebury Common.

*H. triquetrum*. Rather common and general. Marston Copse: Near Elsfield, fine; Holton Stone Pits, &c.

*H. squarrosum*. Common and general.