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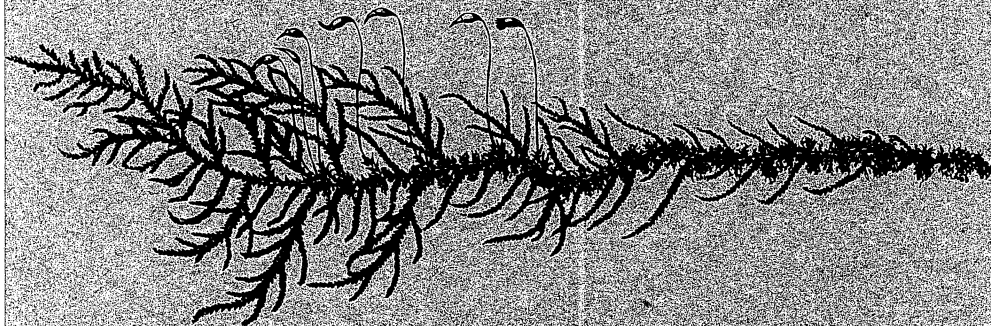


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BULLETIN  
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BRITISH BRYOLOGICAL  
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*Edited by A. R. Perry*



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# BRITISH BRYOLOGICAL SOCIETY

PRESIDENT: G. BLOOM Esq.



## BULLETIN

No. 47. February, 1986

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## SUBSCRIPTIONS

Subscriptions for 1986 became due on 1 January. Members in arrears should pay as soon as possible. Current subscription rates are as follows:

Ordinary membership £10: Junior membership £5: Family membership £1.

North American members may pay in U.S.\$ (\$20:\$10:\$2) direct to Prof. Ronald Pursell, Dept of Biology, Buckhout Laboratory, Pennsylvania State University, University Park, Pa 12802. All other members should pay the new Membership Secretary, Dr Stephen L. Jury, Plant Science Laboratories, University of Reading, Whiteknights, Reading, P.O. Box 221, Berkshire RG6 2AS. Members in E.E.C. countries may pay by Eurocheque in £ sterling; other foreign members should also pay in £ sterling by cheques drawn on a London bank. An insert in this Bulletin is provided to assist you and Stephen Jury the membership secretary.

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## BBS FOREIGN MEMBERS - PAYMENT OF INVOICES

Because of the cost overhead of transferring money between countries, particularly for small amounts, it seems worthwhile to consider the best ways of effecting such transfers. The options available seem to be as follows:

1. Buy sterling cheque payable to BBS, and send by mail.
  - Advantages - No hassle for BBS
  - Disadvantages - Expensive bank charges (approx. £3 in UK)
2. Send cheque in own currency.
  - Advantages - Easy
  - Disadvantages - BBS pays the bill for the transfer - unacceptable to BBS!
3. If in Europe, send Eurocheque.
  - Advantages - Easy - costs only a little more than ordinary cheque in UK.
  - Disadvantages - None
4. Buy sterling cash and send by registered mail.
  - Advantages - Only exchange rate to be paid, not bank charges
  - Disadvantages - Has to be in notes - but still may be cheaper than 1 above
    - Only suitable for amounts of £10 or under - not insured above this
5. Appoint 'collectors' in each country.
  - Advantages - Pay in own currency
  - Disadvantages - Problem of finding a willing victim
    - Collector has to keep records of invoices and amounts
    - Difficult to control, and there are likely to be long delays before the BBS gets the cash
6. Send by bank transfer.
  - Advantages - Easy
  - Disadvantages - More expensive than cheque - cost might be more than amount of invoice

If you have alternative suggestions I would be grateful to hear them, but in the interim, I prefer 1,3 and 6; 3 and 5 are probably the cheapest for those paying.

B.J. O'Shea, BBS Hon. Treasurer, 131 Norwood Road, London SE24 9AF, U.K.

## PROCEEDINGS OF THE BRITISH BRYOLOGICAL SOCIETY

### THE SPRING MEETING, 1985, CHICHESTER

For southern England, Sussex is extremely rich in its bryophytes. The promise of a varied programme of trips with a wide range of species to be seen and most attractive countryside, prompted nearly 50 members to attend all or part of the meeting. Sites to be visited were restricted to the western part of the county (v.c. 13) which reduced the amount of daily travelling to a minimum. The meeting was based on Bishop Otter College in Chichester where we were housed in student accommodation which we had to ourselves for the majority of the week. The food was excellent, although the ingeniously designed plastic packaging for the packed lunches proved quite a test for all but the most mechanically minded members.

Despite the fact that the area is comparatively well recorded, 8 new records for West Sussex were found and we added more than 75 plants to the 10 km squares we visited. Indeed, the meeting was set off to a good start when George Bloom discovered Marchantia alpestris\* lurking in the grounds of Bishop Otter College on the day before the organized trips began.

**18 April.** In the morning Dr Francis Rose led the party to the Nature Reserve on Heyshott Down. This is an area of chalk grassland, scrub and mixed woodland on the steep north-facing scarp of the South Downs which includes some interesting overgrown quarry works. The sparsely wooded grassland areas yielded Rhodobryum roseum and Hylocomium brevirostre, while Racomitrium lanuginosum was seen on more exposed areas. The search for Antitrichia curtipendula, which had been recorded near the top of the slope many years ago, proved fruitless, but the quarry site compensated for this with a rich bryophyte flora including Pleurochaete squarrosa and Entodon concinnus. Several members looked rather pink on the backs of their necks after the unaccustomed sunshine.

The afternoon's site was Ambersham Common. This is an area of heathland on the Folkestone Beds of the Lower Greensand, much frequented, as it turned out, by adders. Braving the zoological guardians of the site, we found quantities of Dicranum spurium, which was as splendid as had been promised, and several Sphagna including S. magellanicum. Perhaps the richest finds were among the hepatics with Cladopodiella francisci, Kurzia sylvatica and Calypogeia sphagnicola as well as Jean Paton's two vice-county records, Calypogeia neesiana\* and Lophozia ventricosa var. silvicola\*.

**19 April.** Rewell Wood and the associated gravel pit were the venue in the morning. We were disappointed not to re-find Atrichum angustatum in the wood or Ditrichum pusillum and Funaria fascicularis in the pit, but nevertheless it was a successful morning. The gravel pit, in which we were treated to a demonstration of motor-cycle scrambling, was particularly good for Fossombronias with both F. husnotii and F. incurva in some quantity as well as Lophozia bicrenata, L. excisa, Bryum bornholmense, B. sauteri, and B. gemmiferum. What with the motor cycles and Martha Newton on the lookout for potential speakers at the AGM, members found they had to keep their wits about them.

A quick sortie across the A27 to the reported site of a number of Nicholson's old records proved disappointing, but spirits were rapidly raised by the main venue for the afternoon, the Sussex Trust for Nature Conservation's reserve at Hurston Warren. This had been billed as one of the best bogs in West Sussex and it lived up to its reputation with another two vice-county records from Jean Paton (Drepanocladus fluitans var. falcatus\* and Riccardia latifrons\*) as well as ten species of Sphagnum, Cephalozia macrostachya, Calypogeia sphagnicola, Cephalozia hampeana and Aulacomnium palustre with sporophytes.

20 April. The weather turned against us on the Saturday with drizzle and low temperatures. The morning we spent in Verdley Wood which is an extensive area of deciduous woodland, largely coppiced, on steep rocky slopes of the Lower Greensand Hythe beds. Several of the tree bases supported Plagiothecium latebricola while Bazzania trilobata and Kurzia sylvatica were also found in the coppice wood. Flushes yielded Marsupella emarginata while one or two rocks in the valley bottom were colonized by Heterocladium heteropterum.

Northpark Copse, the afternoon's site, has Dicranum as its speciality: six are recorded. We managed to locate five, including D. flagellare, but failed to spot D. tauricum on that occasion. Other interesting finds included Martha Newton's discovery of Pellia neesiana\*, Hookeria lucens, Trichocolea tomentella and Barbilophozia attenuata.

21 April. The northern part of West Sussex has much Weald Clay and Sunday's visits were to two Forestry Commission woods on the clay near Plaistow. The first was Kingspark Wood, well known to entomologists as one of the best butterfly sites in southern England, and also a good area for the Violet Helleborine. Part of it is now an SSSI. The main interest at the site is along the rides and tracks; the party examined these as well as the stream valleys. Three Scapanias were seen: S. irrigua, S. nemorea and S. undulata, as well as Amblystegium varium and Hypnum lindbergii. Martha Newton found Pellia neesiana again. Altogether, more than 80 species were recorded.

A similar number of species were seen in the afternoon at Hog Wood, where the party was allowed as far as the vice-county boundary but not across into 'Jack Gardiner's territory' in Surrey! Hog Wood had rather more water than Kingspark Wood, and more broadleaved trees as well, with associated epiphytes. Interesting finds included Calliergon cordifolium, Fissidens exilis, Rhytidiadelphus loreus and the woodland form of Ctenidium molluscum. On the trees the bryophyte flora included Radula complanata, Orthotrichum lyellii, O. affine, O. pulchellum and O. stramineum; Martin Corley found Lejeunea lamacerina.

22 April. Monday morning was spent on Climping Beach and Littlehampton sand dunes. The party made its way via the rather derelict boat mooring area at the estuary of the River Avon, where Pottia heimii was found, and across the Golf Course, to the astonishment of several players. Bryum inclinatum was not seen, but Rhynchostegium megapolitanum was on the dunes and both Aloina aloides and Zygodon conoideus were discovered as we made our way to some impressive large elder trees. With military precision, members were ferried back to their setting-off point and thence to Arundel where Leptodon smithii was found on trees overlooking the car park at the Wildlife Reserve. After lunch we made a circuit of Swanbourne Lake in Arundel Park. Cephaloziella baumgartneri was there, but only in tiny scraps, the colony having been much reduced from former glory by ivy invasion of the site. Other interesting species included Eurhynchium swartzii var. rigidum, Fissidens incurvus, F. limbatus and Tortella inflexa. A couple of members later admitted to rounding the afternoon off with a cream tea in a local cafe.

23 April. The morning of the last day was spent in Duncton Chalkpit, a six-acre reserve managed by the Sussex Trust for Nature Conservation. The site includes an old limekiln (with Gyroweisia tenuis and Tortula marginata) as well as bare chalk and scrub. Eighty species were recorded in an hour and a half, including Seligeria calcarea on the quarry face and S. paucifolia on detached pieces of chalk with Tortella inflexa and Fissidens pusillus var. tenuifolius. Nowellia curvifolia was seen in shaded places and Chris Preston and Angela Newton found more Leptodon smithii on an ash tree. As the party was about to move on, Eustace Jones appeared with Platygyrium repens - only the second record for v.c. 13, it having been found by Rod Stern for the first time in another locality earlier in the year. A short stop in a narrow lane at

Barlavington with steep Upper Greensand banks enabled the party to see Rhynchostegiella curviseta and luxuriant Eurhynchium schleicheri.

After lunch the party was joined at Iping Common by Miss Anne Griffiths, the ecologist from West Sussex County Council. She explained their management policy for this local nature reserve whereby heather is maintained at the expense of invading Scots Pine which has eliminated so much heathland in south-east England. Several species of Sphagnum were seen on the wetter ground, together with the usual hepatic associates. Apart from Drepanocladus exannulatus var. rotae (in its second v.c. 13 locality), all the plants had been recorded earlier in the week, but those who had missed the first couple of days were able to see Campylopus brevipilus, Drepanocladus fluitans var. falcatus, Dicranum spurium and Lophozia ventricosa var. silvicola.

At nearby Chithurst, the party bade farewell to West Sussex with a flourish - Targionia hypophylla in its only v.c. 13 locality, growing on a stone wall with Reboulia hemisphaerica.

All in all, it was a most successful meeting which was thoroughly enjoyable both bryologically and socially. This was in no small part due to the excellent organization by the local secretary, Rod Stern. Shepherding so many wilful and unruly bryologists about is no mean task and we were all most grateful to Rod for his friendly and efficient leadership. I am also very grateful for his help in preparing this account of the meeting.

GILES CLARKE

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#### THE PAPER-READING MEETING, 1985, CARDIFF

The meeting proved to be one of exceptional interest and one that was well attended. It was further distinguished by the presence of two overseas members, both of whom had agreed at short notice to contribute very informative papers before an audience of over sixty members in the palatial National Museum of Wales. Meeting as we were in the Museum and, later, in the Herbarium, it was highly appropriate that we should hear a detailed account of the activities of a herbarium in the United States of America, but the programme also covered a wide range of other aspects of bryology. An initial look at the effects of successive glaciations on the development of the British bryophyte flora was particularly pertinent to the topic of another speaker concerned with the taxonomy of Tortula in the southern hemisphere. Adaptation to environmental factors, but of quite a different kind, were also considered by those speakers who demonstrated on the one hand the physiological response of Sphagnum to nitrogen and, on the other, the nature and extent of the Greek bryophyte flora. There was also a paper which gave us the unusual opportunity not only to learn more about the hornworts, but also to do so in the context of their developmental morphology. It was a challenge to our President to draw these diverse subjects together but this he did in his presidential address. Summaries of these papers follow.

Mr M.F.V. CORLEY (Faringdon, Oxon.): "The bryophyte flora of the British Isles during and after the Ice Age."

The present distribution of any species of bryophyte is a product of its dispersal mechanism and its reactions to ecological and climatic conditions, both now and in the past. The effects of historical factors on species distribution are considered here.

Conditions in Britain at the height of the last glaciation were extreme, with a

considerable part of the country under ice sheets and the remainder experiencing a severe climate. Yet sub-fossil evidence and comparison with peri-glacial areas in Greenland indicate that many bryophyte species were present.

With the retreat of the ice, some of these species became extinct; many arctic-alpine species migrated northwards and up the mountains. Species of warmer climates invaded the southern parts of Britain and spread northwards. At first open habitats were plentiful and wetlands far more extensive than they are today. Calcareous soils were also more widespread than they are now. A number of fenland bryophytes are known to have been common at that time.

Changes in sea level following the melting of the ice sheets flooded land bridges to outlying islands, including Ireland, and eventually cut off the whole of Britain from mainland Europe, making colonisation by additional species more difficult. Soon afterwards, in the Atlantic period, higher rainfall and warm conditions caused forest cover to reach its greatest extent; at the same time moorland areas developed extensive peat cover. This period was optimal for the spread of species of warm shady habitats which reached their greatest extension, and have become more restricted since, often becoming confined to western coastal districts. It was also critical for fen species, with increasing acidification of fens from peat drainage water, and for species of open habitats, which were severely restricted at this time, which may explain many anomalous distributions, where species were confined to a few sites and have not spread extensively since.

Following the Atlantic period, lower temperatures and the increasing activities of man have progressively diminished the area of forest. Many species distributions are at least partly influenced by man. Indeed the greatest factor changing distributions at present is the effect of man in altering habitats.

Dr M.R. CROSBY (Missouri Botanical Garden): "The I.M.S.: a muscological data base."

Dr J.A. LEE (University of Manchester): "Nitrogen as an ecological factor in bryophyte communities."

For many bryophyte species nitrogen deposition from the atmosphere represents the major source of combined nitrogen for growth. Ammonia is assimilated via the glutamine synthetase-glutamate synthase pathway, and nitrate-nitrogen enters this pathway following reduction to ammonia. The enzymes of nitrate reduction, nitrate and nitrite reductase, are substrate inducible and their activity can be used to assess nitrate utilization by bryophytes.

Observations in the 'unpolluted' environment of Swedish Lapland demonstrated how ombrotrophic Sphagnum species respond to nitrate deposition in natural rain events. Sphagnum fuscum showed a rapid induction of nitrate reductase activity to each rain event, the activity declining at the end of the event as the result of nitrate depletion. Repeated artificial addition of 1 mM nitrate to Sphagnum fuscum plants in the field resulted in progressively less induction of nitrate reductase activity after each addition because at this artificially high concentration the supply of reduced nitrogen was too high for growth requirements. The induction of nitrate reductase activity was progressively inhibited by a product of ammonium assimilation, probably glutamine concentration. These and other observations demonstrated that under 'natural' conditions there is a very close coupling of the metabolism of at least ombrotrophic bryophytes with the nitrogen supply in rain events.

During the last century there has been approximately a fourfold increase in atmospheric nitrate deposition as the result of atmospheric pollution.

Observations in one of the most grossly polluted regions of Europe, the southern Pennines of England, showed that ombrotrophic Sphagnum species transplanted into the blanket mires showed rapid and massive increases in total tissue nitrogen concentration. These transplants also rapidly lost their ability to respond to nitrate deposition in rain events by induction of nitrate reductase activity. Indigenous southern Pennine Sphagnum cuspidatum plants showed very low nitrate reductase activity and did not respond to rain events. In grossly polluted areas the nitrogen supply from the atmosphere is currently supra-optimal for the growth of ombrotrophic Sphagnum species, since in addition to field observations, the concentration of nitrate and ammonium in rain reduced the growth of these species in laboratory experiments. These observations were discussed in relation to the potential effects of the increased atmospheric nitrogen supply on the ecology of bryophyte communities in general.

Dr P.J. LIGHTOWLERS (Institute of Terrestrial Ecology, Penicuik): "The systematics of austral Tortula: unravelling southern hemisphere taxa of a temperate genus."

Tortula is a genus whose species occur mostly in the temperate zones of both hemispheres. Although the north temperate species are well studied, the southern hemisphere species are poorly known and, as with other temperate genera, a study of the southern hemisphere species may tell us more about the phylogeny and origins of the genus as a whole.

My knowledge of southern hemisphere Tortula is the result of a taxonomic revision of the genus on the subantarctic island of South Georgia, a study I was able to extend to cover the entire subantarctic and antarctic regions. Most of the southern hemisphere, particularly southern South America, has a poorly known bryoflora: there are a large number of species described in the literature, many of which careful study will show to be synonymous. So a stable and clear nomenclature has not yet been achieved and, in general, taxonomic revisions like that produced for Tortula (Lightowlers, 1985) are necessary before any southern hemisphere bryophyte species can be properly understood.

Subantarctic Tortula species can readily be divided into hair-pointed and non-hair-pointed groups and it is the latter group which is the most diverse. Eight subantarctic species can be distinguished in this group: T. anderssonii, T. arenae, T. filaris, T. fontana, T. geheebiaeopsis, T. robusta, T. rubra and T. saxicola. Leaf and lamina cell measurements, as well as other characters, clearly separate these species. Many of them have also been grown together under identical conditions and were found to remain distinct.

In contrast to the non-hair-pointed plants, the hair-pointed group is more taxonomically difficult. Four provisional taxa were distinguished but these did not appear to be specifically distinct, a conclusion which was supported by evidence from a Principal Components Analysis. Growth experiments also suggested that at least two of the taxa were unstable in cultivation. All of the hair-pointed material was therefore referred to one species, T. princeps, which must be regarded as polymorphic (at least in the southern hemisphere). One of the four provisional taxa was treated as a separate variety (var. magellanica) but the others were combined with the var. princeps.

The non-hair-pointed species of subantarctic Tortula, with the exception of T. saxicola, have dentate or denticulate, lingulate to oblong leaves and base marginal leaf cells which are elongated, rather like a vestigial border. (One species, T. arenae, has a fully bordered leaf.) Together, these species form a coherent and apparently natural group whose closest relative in the northern hemisphere is T. subulata. Because of its bordered leaves, this species has



the same leaf base areolation, it has a similar leaf shape and may have denticulate leaves (in the var. angustata). Since T. subulata is the type species of Tortula, the southern hemisphere plants are referred along with this species to the section Tortula.

T. saxicola, like T. princeps, has entire leaves and areolation at the leaf base in which the quadrate upper-lamina-type cells run down the leaf margin into the basal part of the leaf. Both species thus appear to belong to the section Rurales.

Tortula in the subantarctic is therefore dominated by the non-hair-pointed plants here referred to the section Tortula. This group appears to be mainly mesophytic and probably more primitive than the highly drought-adapted section Rurales. Section Tortula may well have originated in the southern hemisphere with large primitive species like T. robusta, and have given rise to the section Rurales through species like T. anderssonii and T. saxicola. These have morphological features intermediate between those typical of the section Tortula and those of the section Rurales.

Like Tortula, many bryophyte genera may have originated in the southern hemisphere although many may have diversified later in the northern hemisphere. A southern hemisphere origin for many bryophyte taxa is particularly likely as, at one time, most of the land masses formed part of the great southern Gondwanaland continent.

#### Reference

Lightowlers, P.J. (1985). A synoptic flora of South Georgian mosses: Tortula. Bull. Br. Antarct. Surv. 67, 41-77.

Dr C.D. PRESTON (Monks Wood, Huntingdon): "The Greek bryoflora: an English view."

The first bryophytes recorded from Greece were gathered by John Sibthorp (1785-1796). A second collection was brought from the Ionian Islands by the talented and eccentric philhellene Lord Guildford. Thereafter records accumulated gradually, most based on specimens collected by botanists primarily interested in flowering plants. It was not until the late 1950s, with increased opportunities for travel, that bryologists visited Greece regularly. Despite this recent activity, only 2 areas (Crete and Corfu) can be considered to be reasonably well-known bryologically.

The Greek bryophyte flora is intermediate in size between that of the species-rich countries of NW Europe (e.g. British Isles, Germany) and the much more species-poor Middle Eastern territories (e.g. Cyprus, Iraq, Israel). When the Greek flora is compared to the British, it is found that almost all the leafy liverworts recorded from Greece are also found in Britain but over one-third of the Greek thallose liverworts do not occur here: these include the genera Plagiochasma, Mannia, Athalamia, Corsinia and Oxymitra as well as many species of Riccia.

The potential for fieldwork in Greece was illustrated with reference to the varied habitats on the island of Samothrace in the NE Aegean.

Dr M.C.F. PROCTOR (Exeter University): "Amateurs, professionals and the study of bryophyte distribution."

K. RENZAGLIA (East Tennessee State University): "The structure and development of hornworts."

The anthocerototes are a structurally distinct group of bryophytes which show

developmental peculiarities in all phases of their life cycle (Renzaglia, 1978). The vegetative gametophyte is a simple thallus which, except for the occurrence of small epidermal cells and large internal cells in Megaceros, is composed of isodiametric cells of equal size. Large, single plastids with well-defined pyrenoids characterise the cells of most hornworts, the notable exception being Megaceros which has internal cells with up to 14 chloroplasts which lack pyrenoids (Renzaglia & Hicks, 1984). In several species of Anthoceros, Notothylas and Dendroceros, schizogenous mucilage cavities develop in the dorsal thallus while ventral mucilage clefts are found in all species. These latter structures are the site of development for the Nostoc colonies characteristic of all hornwort thalli. Scattered mucilage idioblasts, likewise, occur in most species while slime secretion from epidermal cells serves to protect the apical region and developing gametangia.

Apical growth occurs through the activity of either a wedge-shaped (most genera) or a hemidiscoid (Dendroceros) apical cell. The distinct growth form of Dendroceros, i.e., the thickened midrib and monostromatic wings, is attributable to this difference in generative cell shape. Lateral derivatives of either cell type give rise to wing tissue and the outer midrib, while the basal merophytes produce midrib tissue, rhizoids and the gametangia. Branching is a true dichotomy in which two branch apical cells are formed through an equal division of the apical cell.

Gametangia occur in rows and are sunken along the dorsal midline of the thallus. The solitary archegonia develop from an epidermal initial while the endogenous antheridia occur singly or in groups of up to 25 (Anthoceros) and are produced from a subepidermal initial. Spermatozoids, as exemplified by Phaeoceros (Moser, Duckett & Carothers, 1977; Carothers, Moser & Duckett, 1977) and Notothylas (Renzaglia & Carothers, in press), differ from those of other bryophytes in that they possess identical basal bodies which are positioned side-by-side at the anterior end of the gamete. Moreover, a spline aperture, a posterior mitochondrion and a stellate pattern in the basal body, features common in most bryophyte spermatids, are absent in the hornworts.

Developmental features of the sporophyte which emphasise the isolated nature of the group include the longitudinal first division of the zygote, the development of sporogenous tissue from the amphithecium and the continued growth of the sporophyte from a basal meristem. Diversity in mature sporophytes serves as the primary basis for the separation of the 5 or 6 genera in the group. In general, the hornworts are a homogenous plant group which when compared with other land plants show unique morphogenetic and structural features.

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The Annual General Meeting which followed (Minutes in Bulletin 48) was succeeded in the evening by a conversazione and sumptuous buffet generously provided by the National Museum of Wales. A large number of demonstrations were displayed and are listed below. An outstanding feature of this meeting was the opportunity it afforded to examine the public galleries of the Museum, as well as the Herbarium which houses the B.B.S. collections. For this, we are greatly indebted to Mr A.R. Perry, whose efforts on our behalf, coupled with those of his family, were so clearly seen in the success of the meeting.

Mrs J. Appleyard and Dr H.L.K. Whitehouse: Gemmae on Orthotrichum tenellum.  
Dr K. Benson-Evans: Regeneration studies in some mosses.  
Mrs E. Campbell and Dr K. Benson-Evans: Maturation stages in liverworts, Marchantiales; Annual maturation cycle in Pellia, Jungermanniales.  
Mr A.C. Crundwell: Pohlia prolifera and P. annotina in Britain.  
Mr L.T. Ellis and Dr S.W. Greene: The BBS Bryohistorical Project.  
Dr E.W. Jones: Souvenir de Draguignan.  
Miss A.E. Newton: Bryophyte site register for Cambridgeshire.  
Miss A.E. Newton and Dr C.D. Preston: Flora of Samothrace.  
Mr A.R. Perry: B.B.S. tie; Some recent bryophyte acquisitions in the National Museum of Wales.  
Mr A.R. Perry and Dr H.L.K. Whitehouse: Protonema-gemmae in Scopelophila.  
Mr J. Slade and Dr K. Benson-Evans: The effect of light intensity and day length on the production of antheridia.  
Mr E.C. Wallace: B.B.S. photographs.  
Drs M.P. and H.L.K. Whitehouse: Stereoscopic photographs of Gymnostomum calcareum and species confused with it.

M.E. NEWTON

Sunday 22 September dawned fine and sunny after the deluge of the previous evening and this ensured a good number of members taking part in a day in the field in Glamorgan (v.c. 41). Choosing good bryological sites within easy reach of a city or exit routes for people making homeward journeys later in the day, is not always easy, and had been somewhat problematic in this case. But the three sites visited turned out to be well suited to our requirements, with some interesting finds, including four new vice-county records.

The first locality was Coed-y-bedw, west of Taff's Well, a 40-acre deciduous woodland owned by the Glamorgan Trust for Nature Conservation. Geological interesting, it embraces the transition zone between Coal Measures in the north and Carboniferous Limestone in the south, and possesses sandstone outcrops and limestone rocks separated by a marshy stream bed. Ninety bryophytes have been recorded and we saw such diverse elements as Sphagnum angustifolium, Rhytidiadelphus loreus, Saccogyna viticulosa, Eurhynchium schleicheri and Dicranum tauricum. But the best new finds were also new vice-county records: Trichocolea tomentella\* and Campylium calcareum\*.

We drove north and in the grounds of the Miners' Rehabilitation Centre at Talygarn we had lunch during which Harold Whitehouse set to minutely examining some old oolite steps for Leptobarbula berica. Unfortunately he later decided that the plant he was collecting was probably just young Barbula vinealis. However, he and Chris Preston made up for this later by finding at the base of a wall the best material of Trichostomopsis umbrosa\* either of them had seen in Britain. We spent the first part of the afternoon in the overgrown boggy woodland surrounding the two lakes at Talygarn. Here the epiphytes are quite lush with such species as Metzgeria fruticulosa in evidence, but we found nothing of great note although Cryphaea heteromalla, a very rare species in this part of the country, was on Sallows and on a sandstone coping stone. Besides these there were good growths of many common woodland species,

especially useful for beginners.

Back at the cars the party split into three: those who wished to visit the final locality on the programme; those who thought it time to leave for home; and a third party lured by Harold Whitehouse to Hengrove Wood, Claverton, near Bath (6), to try to re-find Leptobarbula recorded there earlier. They refound the spot, but it was so dark, owing to shading by trees, that they could not see any bryophytes! Meanwhile, back in Glamorgan, the now very select party went to Hensol Forest in the region of Pysgodlyn Mawr (the "Large fishpond") to examine an extensive area of sallow carr. The water level of this oligotrophic pond had recently been raised by a dam in order to create more stable conditions for the fishermen using it, and this was causing a rapid increase in the Sphagnum along one of the shorelines, not only in area, but also, it seems, in species. Here on tallows Tom Blockeel detected small amounts of Colura calyptrifolia\*, a most unexpected find, with its next nearest known localities being in West Cornwall and Merioneth. We wondered whether other excitements such as Drepanolejeunea hamatifolia might turn up, but we were not that fortunate!

A. R. PERRY

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#### TAXONOMIC WORKSHOP, 1985, SELBORNE

Sixteen attended the workshop from 2-3 November in Selborne in addition to the four members (June Chatfield, Alan Crundwell, Francis Rose and Rod Stern) providing tuition. The subject of the Workshop was the larger, common bryophytes of woodland, and after a general introduction to bryophytes in The Gilbert White Field Studies Centre where we were based, the afternoon of 2 November was spent in the field when we walked to Milking Hanger and Long Copse (an S.S.S.I.), a deep wooded valley of standards and coppice cut into the Upper Greensand. This is a remarkably wet wood for southeast England and there was luxuriant growth of bryophytes. We investigated the trunks of the oak standards and secondary tree layer, the ground layer and the sides of the stream - these habitats yielded a total of 45 species. After a busy afternoon outside, members were able to do justice to the gargantuan meal at Bush House when we relaxed in the evening in a beamed restaurant with a log fire.

All localities visited are in v.c. 12. Sunday morning, which was cold and frosty, was spent on Selborne Hanger, a steep woodland on the scarp slope of the chalk that is capped by acid clay-with-flints, providing an interesting contrast in the bryophyte flora. Selborne Hanger (also an S.S.S.I.) is managed by the National Trust and their local Warden Chris Webb joined the weekend course. Also with the workshop were John Ockenden, responsible for the East Hampshire Hangers Project and Fay Stranack, Chairman of the Conservation Committee of the Hampshire and Isle of Wight Naturalists' Trust.

The final excursion on the Sunday afternoon was to Hogmoor Inclosure, Whitehill, a mixed woodland and heath on acid sandy soil of the Lower Greensand. Here we found a complete contrast in flora with acid indicators like Pleurozium schreberi, Polytrichum juniperinum and Sphagnum spp. Rhytidiadelphus loreus, a moss typical of old woodland, was an unexpected find in this location. Although away from the official theme of woodland bryophytes, a large slab of concrete put down by the army was well colonised by mosses, especially the smaller acrocarps. Forty seven species were recorded from the Hogmoor Inclosure. This proved an enjoyable meeting and there were requests for further bryological activities in this area. The location of the meeting - Selborne - is known as the home of the Reverend Gilbert White, author of The

Natural History of Selborne (1789). White was more of a zoologist than a botanist, but his writings do occasionally refer to mosses and one letter in the book features Polytrichum commune or The Great Golden Maidenhair, which was used for making besom brooms.

JUNE CHATFIELD

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## COUNCIL NEWSLETTER - NUMBER 2

The Council Newsletter was initiated in the February 1985 issue as a regular feature of the Bulletin. Its function is to report the more important decisions of Council and to invite the views of members on matters under consideration. This second Newsletter is concerned primarily with the deliberations of Council during 1985. Members are encouraged to communicate with the General Secretary or other appropriate officer to express their ideas and opinions on the issues raised here, or on any other matters relating to the affairs of the Society.

### Finance

After operating at a small profit for several years since the last change in subscriptions the Society was slightly in deficit during 1985, and greater losses can be anticipated in future years as costs continue to rise and our reserves dwindle. Council is therefore forced to think in terms of an increase in subscriptions from the beginning of 1987. It would be helpful to know whether members would prefer to see a substantial rise followed by stability for several years, as when the Ordinary Membership subscription was raised from £6 to its present £10 in 1982, or more frequent, but more modest increases. The former is administratively more convenient, as a good deal of work is involved in ensuring that standing orders, etc. are revised each time the subscriptions change.

### Proposal for an International Bryological Bibliography

Members may be interested to know that a proposal to establish an international bryological bibliography, submitted on behalf of the BBS, was approved in principle at a Council Meeting of the International Association of Bryologists (IAB) during August 1985, although it was not thought feasible for the bibliography to be computerized initially, as was originally proposed. A small committee of IAB is now looking in detail at the practicalities of the scheme. If it goes ahead, significant savings in time and money should result from the publication of a single bibliography to replace those currently appearing in several journals, and convenience to users will also be enhanced. Implementation of the scheme would probably result in a bibliography no longer being a feature of Journal of Bryology, but it is envisaged that the international version would be distributed free to all BBS members. No such change will be introduced without the approval of the membership.

### Rules of the Society

Council gave serious consideration during 1985 to revision of the Society's Rules, and as a result certain changes were approved at the Annual General Meeting in Cardiff. A principal objective in recommending the changes was to ensure that the Rules accurately reflect current practice. Thus the new Rules recognise the Bulletin, as well as Journal of Bryology, as an "official organ" of the Society. The opportunity was also taken to streamline the statement of the Society's objects. Under membership, a new clause has been introduced allowing for the expulsion of any member whose activities are considered to bring the Society into disrepute, for example by unjustified collecting of endangered species. The level of membership subscriptions is no longer specified in the rules, but the procedure for altering subscriptions remains unchanged. Finally, provision is now made for any 50 members to call for a

Special General Meeting.

#### **Bryophyte Site Register Scheme**

Work on the Site Register Scheme (Bulletin 45, 1985, p. 14) is proceeding smoothly, based at the Monkswood Experimental Station, Abbots Ripton. Angela Newton and Nick Hodgetts are working on the project under contracts with the Nature Conservancy Council. An inventory of sites in Cambridgeshire has been completed and work is in progress on Cornwall, with Huntingdon under consideration. Members with information on sites of bryological significance in these three counties are asked to write to Miss Newton at Monkswood Experimental Station, Abbots Ripton, Huntingdon, PE17 2LS.

#### **Duties of Officers**

A small committee has been formed to draw up a set of guidelines on the duties of officers and elected members of the BBS Council. It has been asked to report to the Council Meeting in April 1986.

#### **Joint Meeting with the British Ecological Society**

It has been agreed that the Summer Meeting in 1988, at Stirling, will include as well as the usual programme of field excursions a three-day symposium organized jointly with the British Ecological Society. The ecology of bryophytes is a rapidly expanding field of study, as demonstrated by the success of the recent IAB conference on Bryoecology at Budapest. It is hoped that the forthcoming symposium will provide a forum for lively discussion of topics ranging widely from the habitat preferences of individual species to the role of bryophytes in the functioning of terrestrial ecosystems, by contributors from this country and overseas. Anyone with suggestions for speakers or suitable subjects for discussion is urged to contact the General Secretary or the Meeting Secretary as soon as possible.

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### **FUTURE MEETINGS OF THE SOCIETY**

Members are recommended to read the BBS Provisional Safety Code, published in Bulletin 43 and available from local secretaries for inspection during BBS meetings.

#### **SPRING FIELD MEETING, 1986, East Dereham, Norfolk, 2 - 9 April.**

Organizer & Local Secretary: Mr Robin Stevenson, 111 Wootton Road, King's Lynn, Norfolk, PE30 4DJ. Tel.: King's Lynn (0553) 766788.

Headquarters: The King's Head Hotel, Dereham, Norfolk, NR19 1AD (AA\*\*). Tel.: Dereham (0362) 3842 (Single room, B. & B. £19.50)

Full details of the programme, together with information about alternative accommodation, are available from the local secretary, who would welcome enquiries as soon as possible. Members should make their own bookings direct, bearing in mind that 2 April is the day of arrival and 9 April the day of departure. Intending participants are advised to book as early as possible.

Mention of over fifteen species of Sphagnum, Dicranum spurium, Homalothecium nitens, Cinclidium stygium and Leiocolea rutheana on the one hand and of Pterygoneurum lamellatum, Rhytidium rugosum and Riccia cavernosa on the other gives some indication of the diversity of habitats to be examined. They include a good selection of well-known bryological sites as well as unworked areas. The administrative county of Norfolk covers two vice-counties, v.c.'s 27 and 28, and localities to be visited range across both.

The meeting is also innovative in that the organizers, Mr Stevenson and Mr R.P. Libbey, have made arrangements for a beginners' course to precede the field meeting. To be held on 2 April, it is hoped that it will attract members

and non-members alike, at least some of whom will then wish to attend the rest of the meeting. Dr K.J. Adams and Mr P.J. Wanstall have generously agreed to act as tutors, thereby promising to make this a very worthwhile introduction to the bryophytes of Norfolk.

**SUMMER FIELD MEETING, 1986, Fort William, Inverness-shire, 23 - 30 July (1st. week); Gairloch, Wester Ross, 30 July - 6 August (2nd. week).**

**PLEASE NOTE:** Participants will arrive at Fort William on 23 July, leave Fort William for Gairloch on 30 July, and leave Gairloch on 6 August.

Organizers & Local Secretaries: Mr G.P. Rothero (for Fort William), Benmore Centre, by Dunoon, Argyll, Scotland; Mr D.G. Long (for Gairloch), Royal Botanic Garden, Edinburgh, EH3 5LR. Tel: 031-552 7171 (work) or 0875-320226 (home)

**1st week: Fort William, 23 - 30 July.**

Headquarters: The Nevis Bank Hotel, Auchamore Road, Fort William, Inverness-shire.

The sites to be visited will depend very much on the weather but hopefully will include some of the following:

Coire Leis, Ben Nevis (Grid Ref. 1771); N.E. Coire, Aonach Beag (2071); Stob Ban, Mamores (1465); N. Coire, Stob Coire Earain (2373/74); W. and S.W. slopes of Meall a' Chaorain (1064); deciduous woodland, Loch Sunart; Coire Gabhail (The 'Lost Valley'), Glencoe (1655); Glen Nevis to Poll Dubh (1468); Nevis Gorge (1768/69) and Meall Cumhann (1768); woodlands along the River Spean (2081, 2481). All these sites are on O.S. Sheet 41 except for Loch Sunart which is on sheets 40 and 49 (typical!). A number of other low level sites are being borne in mind in case Summer '86 resembles Summer '85! It should be noted that accommodation in Fort William gets booked up fairly quickly, so intending participants should book as soon as possible.

A certain amount of transport in private cars will be available for members intending to transfer from Fort William to Gairloch.

**2nd week: Gairloch, 30 July - 6 August.**

Headquarters (provisional): Gairloch Hotel, Gairloch.

Maps: O.S. 1:50,000 Sheet 19 mostly (and sheet 20 for Beinn Dearg).

O.S. 1:25,000 Outdoor Leisure Map of the Cuillin and Torridon Hills.

The BBS has met only once before in the North West Highlands, at Ullapool in 1960 (See Trans. Br. bryol Soc. 4, 180-183, 1961), which demonstrated the rich bryoflora of Wester Ross. Gairloch lies in a bryologically less well-known area south of Ullapool, and the district is renowned for the Beinn Eighe National Nature Reserve and for the famous Inverewe Gardens.

A wide range of habitats occurs: for example coastal sand-dunes, with Haplomitrium hookeri, wooded ravines with oceanic species, and a variety of mountain habitats, including Beinn Eighe with Herbertus borealis and An Teallach with oceanic-montane hepatics such as Anastrophyllum joergensenii. Native pine forest occurs on the slopes of Loch Maree. An optional locality is Beinn Dearg, well worth the longer drive for its base-rich ledges and late-snow areas with a wealth of rarities including Hygrohypnum polare, Dicranum glaciale, Odontoschisma macounii and an as yet undescribed species of Andreaea.

Details of accommodation are available from the organizer; there is a good selection of hotels and guest houses as well as a youth-hostel and campsite.

**ANNUAL GENERAL MEETING AND PAPER-READING MEETING, 1986, University of Leeds, 20 - 21 September.**

Local Secretary: Professor D.J. Cove, Department of Genetics, The University, Leeds, LS2 9JT.

Accommodation has been reserved in Ellerslie Hall, which is conveniently situated on campus. Depending on numbers, lectures will be held in the hall itself or in a larger lecture theatre. It is therefore particularly important that the local secretary should have some indication of intending numbers in good time to make final arrangements. All bookings should, as usual, be made through the local secretary. The cost of full board will be £18.50 (+ V.A.T.) with the tariff being itemized for the convenience of members attending only part of the meeting. Following the paper-reading meeting, there will be a field excursion led by Mr T.L. Blockeel.

**TAXONOMIC WORKSHOP, 1986, University of Reading, 1 - 2 November.**

Organizer & Local Secretary: Dr R.E. Longton, Department of Botany, The University, Reading, RG6 2AS.

The study of plants in cultivation can provide valuable information in relation to problems in taxonomy and several other aspects of bryology. This workshop will provide guidance on a number of techniques that have been found effective for growing bryophytes, including cultivation in the greenhouse and the initiation and maintenance of axenic cultures on artificial media. Dr H.L.K. Whitehouse, Mr M.V. Fletcher and Dr R.E. Longton will act as tutors. Details of the programme and of accommodation in Reading can be obtained from the local secretary.

**SPRING FIELD MEETING, 1987, Penzance, Cornwall, 1 - 8 April.**

Organizer & Local Secretary: Mrs J. Paton, Fair Rising, Wagg Lane, Probus, Truro, Cornwall, TR2 4JU.

Headquarters: The Union Hotel, Chapel Street, Penzance (1985 prices; B. & B. £14, dinner from £3.50).

Penzance offers a wide range of accommodation but there is a general shortage of single rooms. There is a Youth Hostel 1½ km from the H.Q.

In addition to field excursions on the Land's End and The Lizard peninsulas, there will be an optional helicopter flight direct to Tresco in the Isles of Scilly on Monday 6 April (1985 Day Return Fare: £27). British Airways are prepared to reschedule their morning flights which will enable members to have about six hours on the island. In order to take advantage of this offer, provisional bookings must be sent by 31 July, 1986, to Mrs Paton who will be responsible for all the reservations. The number of helicopter seats is about 28 so bookings will have to be treated on a first come first served basis and may have to be limited to bona fide bryologists. Definite bookings and money for tickets will not be required until February 1987.

There will be one or two alternative venues for those not joining the excursion to Tresco.

**SUMMER FIELD MEETING, 1987, Achill Island, Co. Mayo, and Westport.**

Organizer & Local Secretary: Dr D.M. Synnott, National Botanic Gardens, Glasnevin, Dublin 9, Ireland.

Preliminary details in Bulletin 46. Further details will be published in a later issue.

**ANNUAL GENERAL MEETING AND PAPER-READING MEETING, 1987, Wye College, Kent.**

Local Secretary: Dr M.A.S. Burton, Paris House, East Malling, Maidstone, Kent, ME19 6AU.

Arrangements are being made to hold this meeting where there is convenient access to good chalk country for the Sunday field excursion.



**TAXONOMIC WORKSHOP, 1987, University of Manchester.**

Organizer & Local Secretary: Dr S.R. Edwards, The Herbarium, Manchester Museum, The University, Manchester, M13 9PL.

**BRYOPHYTE ECOLOGY SYMPOSIUM, 1988.**

It is proposed that this will be organized jointly by the B.B.S. and the British Ecological Society and will consist of a three-day symposium followed by up to a week of field excursions. Initial discussions are considering Stirling University as a possible venue and these are being pursued by Dr R.E. Longton, Dr P.J. Lightowlers and myself on behalf of the B.B.S.

**SPRING FIELD MEETING, 1988.**

Suggestions for a popular venue would be welcome.

**A.G.M. AND PAPER-READING MEETING, 1988.**

The venue for this, according to precedent, will be in the north of England and suggestions would be welcome.

**TAXONOMIC WORKSHOP, 1988.**

This is due to be held in southern England. Suggestions for the topic and venue would be appreciated.

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**OTHER BRYOLOGICAL MEETINGS**

18 - 22 April, 1986: Bryophytes. Brian Brookes, Highland Field Studies, Glenshieling, Hatton Road, Blairgowrie, Perthshire, PH10 7HZ. The Bryophyte field courses run by our member Brian Brookes will be based on comfortable guest house accommodation in Blairgowrie, Perthshire. Further information can be obtained from him (sae appreciated).

1 - 8 August, 1986: Mosses and Liverworts. Dr M.E. Newton, Preston Montford Field Centre, Montford Bridge, Shrewsbury, SY14 1DX.  
Details from the Warden, Mr J.A. Bayley, at the above address.

12 - 19 September, 1986: Mosses and Liverworts. Dr M.E. Newton, Malham Tarn Field Centre, Settle, North Yorkshire, BD24 9PU.  
Details from the Warden, Mr K. Iball, at the above address.

27 September - 4 October, 1986: Mosses and Liverworts. Dr M.E. Newton, Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire, PH10 7PG.  
Details from the Warden, Dr A. Lavery, at the above address.

11 - 18 October, 1986: Bryophytes. Brian Brookes, Highland Field Studies, as above.

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**A BRYOPHYTE FLORA OF CORNWALL, 1969**

If you have or know of a separate of this flora (Trans. Br. bryol. Soc. 1969) which is no longer required, I would be most grateful if it could be returned to me. My own stock is almost exhausted and I am keen to have available at the meeting in Penzance in April 1987, as many copies as possible for the use of those who have become members since it was published. I will gladly refund postage.

Mrs J.A. Paton, Fair Rising, Wagg Lane, Probus, Truro, Cornwall, TR2 4JU

B.B.S. LIBRARY SALES AND SERVICE 1986

FOR LOAN:

Members wishing to borrow books or papers are advised to consider whether a xerox copy of the appropriate pages would suffice instead of the original in view of current postal rates. The current charge is 10p per exposure. Limit 50.

(a) Approximately 230 bryological books, journals and several thousand offprints of individual papers. A catalogue of the books and journals is available from the librarian, price £1.00.

(b) Transparency collection, list available (S.A.E.). 630 slides in the collection. Loan charge (to cover breakages of mounts) 50p plus return postage. Only 50 slides may be borrowed at a time to minimise possible loss or damage.

(c) Microscope stage-micrometer slide for calibration of eyepiece graticules. 10µm divisions. Loan deposit £15.

FOR SALE:

British Bryological Society Bulletins: Back numbers from No: 23 @ £1.00 each.

Transactions of the British Bryological Society / Journal of Bryology:

Vol. 1	parts 1-5	(£2.40 each)	£12	
Vol. 2	parts 1-4	(£3.00 each)	£12	
Vol. 3	parts 1-5	(£2.40 each)	£12	
Vol. 4	parts 1-5	(£2.40 each)	£12	
Vol. 5	parts 1-4	(£3.00 each)	£12	
Vol. 6	parts 1-2	(£6.00 each)	£12	- ends the series of <u>Transactions</u>
Vol. 7	parts 1-4	(£5.00 each)	£20	- renamed <u>Journal of Bryology</u>
Vol. 8	parts 1-4	(£5.00 each)	£20	
Vol. 9	parts 1-4	(£5.00 each)	£20	
Vol. 10	parts 1-4	(£8.00 each)	£32	
Vol. 11	parts 1-4	(£10.00 each)	£40	
Vol. 12	parts 1-4	(£11.50 each)	£46	
Vol. 13	parts 1-2	(£15.00)	part 3	(£16.25)

Duncan, J.B.	Census Catalogue of British Mosses, 2nd edition	1926	(20p)
Sherrin, W.R.	Census Catalogue of British Sphagna.	1946	(20p)
Paton, J.A.	Census Catalogue of British Hepatics, 4th edition	1966	(20p)
Warburg, E.F.	Census Catalogue of British Mosses, 3rd edition	1963	(20p)

Corley, M.F.V. Distribution of Bryophytes in the British Isles 1981  
& Hill, M.O. (A Census Catalogue of their Occurrence in Vice Counties)  
Price incl. P. & P. Non-members (£6.00) Members (£5.00)

Corley et al. Mosses of Europe and the Azores. An Annotated List of Species,  
with Synonyms. Price including P. & P. 1981 (£2.50)

Grolle, R. Hepatics of Europe and the Azores. An Annotated List of  
Species with Synonyms. Price including P. & P. 1983 (£2.50)

Pearman, M.A. A Short German-English Bryological Glossary. 1979 (50p)

Swift x20 Handlens and Leather Case	(£8.00)
Idealteck No 3 Stainless Steel Forceps	(£3.00)

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All the above items available from the B.B.S. Librarian.

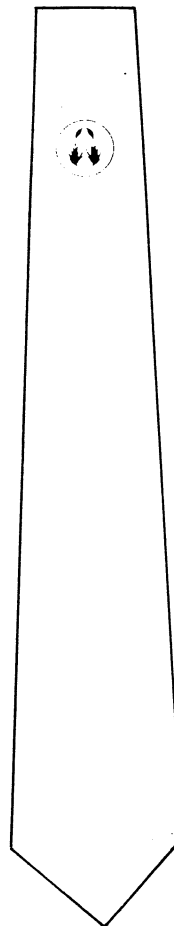
Kenneth J. Adams, 63 Wroths Path, Baldwins Hill, Loughton, Essex. IG10 1SH.

## BBS TIES

BBS Ties are now available! They are woven in best quality polyester and there is a choice of two colours, mid-grey or claret, embroidered with a single BBS logo in olive green and chestnut. The logo is the one now adopted by the BBS and was the winner in a competition. It is from a design submitted by Mrs E. J. McDonnell of Wedmore, Somerset and consists of two fertile stems of Pottia bryoides respectant in an enclosing circle.

Ties are available from Dr K. J. Adams, 63 Wroths Path, Baldwins Hill, Loughton, Essex, IG10 1SH, at £4.95 each + p. & p.

ORDER NOW TO SAVE DISAPPOINTMENT!!



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## L201 MONOCULAR MICROSCOPES FROM PEOPLE'S REPUBLIC OF CHINA

The BBS Librarian is now stocking a few of these excellent, cheap, microscopes again for BBS members.

### Specification:

Rack and pinion focusing, iris diaphragm and filter holder, Abbe focusing condenser, rotating and adjustable stage, x6 x10 x15 eyepieces, x5(N.A.0.1) Chinese and Russian x8(N.A.0.2) plus ring-loaded x40 (N.A.0.65) achromatic objectives. Small plug-in mains lamp optional extra, in place of mirror. Finish in grey enamel and chromium plating.

Prices and further details from Ken Adams, BBS Librarian, tel.: 01 508 7863.

## REFEREES (January, 1986)

Specimens sent to the referees should have a 4- or 6- figure grid reference in addition to the locality description. THEY SHOULD ALWAYS BE ACCOMPANIED BY A STAMPED, ADDRESSED ENVELOPE, EVEN IF MATERIAL IS SENT FROM UNIVERSITIES OR INSTITUTIONS. If anyone has difficulty in getting a specimen named they should send it to the appropriate Recorder - Mr Corley for hepatics or Mr Blockeel for mosses (addresses below)

The general referee will help beginners who are having difficulty in placing their material in a genus. The numbers refer to genera in Distribution of Bryophytes in the British Isles by M.F.V. Corley and M.O. Hill (1981).

**GENERAL REFEREE:** Mrs A.G. Side, 82 Poplicans Road, Cuxton, Rochester, Kent,  
ME2 1EJ

### HEPATIC REFEREES:

- 1,2,15-17,38,53-55,64-67,69: D.G. Long, The Herbarium, Royal Botanic Garden,  
Edinburgh, EH3 5LR  
3-10,13,14,18-24,36,37,39-44: T.L. Blockeel, 9 Ashfurlong Close, Dore,  
Sheffield, S17 3NN  
11,12,58: Mrs J.A. Paton, Fair Rising, Wagg Lane, Probus, Truro, Cornwall,  
TR2 4JU  
25-35,45-47: M.F.V. Corley, Pucketty Farm Cottage, Faringdon, Oxfordshire,  
SN7 8JP  
48-52,78-86: M.J. Wigginton, Nature Conservancy Council, Northminster House,  
Peterborough, PE1 1UA  
56,57,59-63,68,70-74: T. Blackstock, Nature Conservancy Council, Ffordd  
Penrhos, Bangor, LL57 2LQ  
75-77: G. Bloom, 15 Tatham Road, Abingdon, Oxfordshire, OX14 1QB

### MOSS REFEREES:

- 1: M.O. Hill, Institute of Terrestrial Ecology, Penrhos Road, Bangor, Gwynedd,  
LL57 2LQ; A. Eddy, Dept. of Botany, British Museum  
(Natural History), Cromwell Road, London, SW7 5BD  
2-10,143: M.O. Hill (address above)  
11-36: M.F.V. Corley (address above)  
37,38,62-66: Dr A.J.E. Smith, School of Plant Biology, University College of  
North Wales, Bangor, Gwynedd, LL57 2UW  
39,67-81,96-104,106-109,112-138: E.C. Wallace, 2 Strathearn Road, Sutton,  
Surrey, SM1 2RS  
40-61: Dr D.F. Chamberlain, Department of Botany, Royal Botanic Garden,  
Edinburgh, EH3 5LR  
82-90,105: Dr E.V. Watson, Little Court, Cleeve, Goring on Thames, Reading,  
Berkshire, RG8 0DG  
91-95: Dr P.D. Coker, School of Biological Sciences, Thames Polytechnic,  
Wellington Street, London, SE18 6PF  
110,111: M.J. Wigginton (address above)  
139-142, 144-175: Mrs J. Appleyard, Sunnyside, West Horrington, Wells,  
Somerset, BA5 3ED

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## BRYOPHYTES, NOT DRUGS

The police search for drugs now includes examination of packages sent through the post. Delay and possible damage to bryological specimens might be avoided if the contents are clearly indicated on the front of the package and the sender's name and address written on the back of it. It is suggested that the word "mosses" should always be used, e.g., "dried herbarium specimens of mosses" or "living material of mosses" since this probably means more to most people than "bryophytes", "liverworts" or "hepatics".

## SHOOTLET PROPAGULA ON CULTURED MATERIAL OF PHILONOTIS FONTANA FROM SUTTON PARK

In July, 1985 when examining healthy material of Philonotis fontana which had been cultured at room temperature on soaked cotton wool over garden soil in an open glass jar for twelve months, I noticed a number of shootlets which had fallen from some of the plants at the touch of a needle which I was using. Other plants retained the normal branched upper portions when brushed by the needle.

The size of the detached shootlets ranged from 4 to 7 mm. Microscopically, the bases of them tended to be rounded and they were obviously propaguliferous in nature.

This is the first report of a propaguliferous form of Philonotis fontana in Warwickshire. The existence of a propaguliferous form of this species was first reported by Loeske in 1906.

Ten of the propagula were placed on an identical growth medium and left in a saturated atmosphere at room temperature on 16 July. On the 20th, the shootlets were examined microscopically. Nine of the propagula showed well-developed rhizoidal growths at their bases; the tenth possessed several primordia of rhizoids. The rhizoidal growth on the majority of the shootlets could be clearly seen with a x20 lens.

J.H. FIELD

## A SOVEREIGN DISCOVERY

Bryologising with Harold Whitehouse and his Cambridge group is always a rewarding experience, as those lucky enough to be able to attend the meetings will know. However, they are not all quite so rewarding as the meeting which took place on 3 November, 1984 at Great Shelford, just outside Cambridge itself.

Towards the end of the day, and to the obvious amazement of a lady walking her dog, a group of us were indulging in a little of that particularly knee crunching branch of bryology which is to be found in stubble fields. Bryologically speaking the field did not yield anything of exceptional interest, although I was pleased to be shown Phascum floerkeanum, by Chris Preston.

Numismatically however the site proved much richer. A single yellow coin bearing the head of the young Victoria which I found provoked no recognition amongst those present. Subsequent examination by my local museum, however, revealed that it was, in fact, a gold sovereign.

Its value as a coin is considerably reduced by the various scratches it carries, but even as a lump of gold it is, apparently, worth about £60, which should pay my subs. for a year or two.....

ROBIN STEVENSON



## A NINETEENTH-CENTURY MOSS-HOUSE AT BAGSHOT PARK, SURREY

M.A. Pearman  
(Chatsworth, Derbyshire)

'The most interesting and remarkable Victorian garden buildings were undoubtedly the moss-houses'. So writes(1) Peter Hunt, founder of the Garden History Society, yet it has proved difficult to unearth further information on these bizarre structures and a careful search of the contemporary literature has so far yielded only two articles of any value. One of these(2) briefly describes a small, nine-sided moss-house at Murtle, near Aberdeen, while the other, published in volume 10 (1834) of the Gardener's Magazine and Register of Rural and Domestic Improvement, discusses(3) a more ambitious structure built for the Duchess of Gloucester at Bagshot Park, Surrey, and is of sufficient bryological interest and detail to reprint here in full.

Little seems to be known of the author of this second article, Andrew Toward (c. 1796-1881), although there is a brief acknowledgement of his death in the Florist and Pomologist 96 (1881). Apparently he later became Land Steward to Queen Victoria at Osborne House, Isle of Wight, the country home built for her by the Prince Consort. Despite these exalted connections it does seem likely that he collected and identified the mosses himself rather than, as Hunt suggests, relying upon 'a botanically-minded female of the house' to do the task. This is inferred from an article in the same journal but six years earlier(4) in which the Duchess of Gloucester's gardens at Bagshot Park are described and the praises sung of Mr. Toward as a naturalist. The editor of the journal, J.C. Loudon, writes 'We were much gratified to observe Mr Toward's taste for natural history, evinced by a collection of specimens in different departments, and an excellent herbarium in four thick folio volumes, mounted and bound in a superior manner, at the expense of the Duchess. The number of species in this herbarium exceed three thousand....classified according to the Linnean system'.

In his article Andrew Toward explains that within the moss-house between twenty and thirty of the commoner moss species are arranged in stripes on either side of the entrance, and as many as sixty species of more diminutive (and thus probably different) mosses and lichens incorporated in the spangles over the doorway, implying the use of at least seventy species overall, 'collected in and about this neighbourhood'. This is an impressive achievement, if we can set aside for the moment our qualms about conservation. (The instructions for bryologists given by Mrs Tripp in 1888(5) are worth remembering: '....the rule to be observed in collecting is simply to carry home all the mosses that you find. Take large tufts, pulling them fearlessly....'). Of the twelve species actually named, the range of textures and colours used shows considerable ingenuity, from the pink of Sphagnum acutifolium (= S. capillifolium) to the 'yellowish white' of Sphagnum obtusifolium (strictly S. palustre but the colour suggests the allied S. papillosum), the yellowish green, presumably the spring growth, of Bryum hornum (= Mnium hornum), and the whitish green of Dicranum glaucum (= Leucobryum glaucum). In referring to the pink of Bryum (= Rhodobryum) roseum - the specific name refers to the shape, not the colour, of the terminal rosette - the author is more likely to mean Bryum pallens. Presumably all of the colours would have varied according to the humidity.

Although Andrew Toward was a regular contributor to gardening journals in the 1830's, the Bagshot Park moss-house is never mentioned again and there is no way of knowing for how many years the structure survived: probably not very long once the initial enthusiasm had waned. But to have come across the moss-house when it was newly completed, with its multi-coloured wood mosaic patterns on the outside and over 200 square feet of tightly-packed 'Turkey carpet' of mosses within, must have given the Duchess's visitors something of a

shock as they sauntered through the gardens.

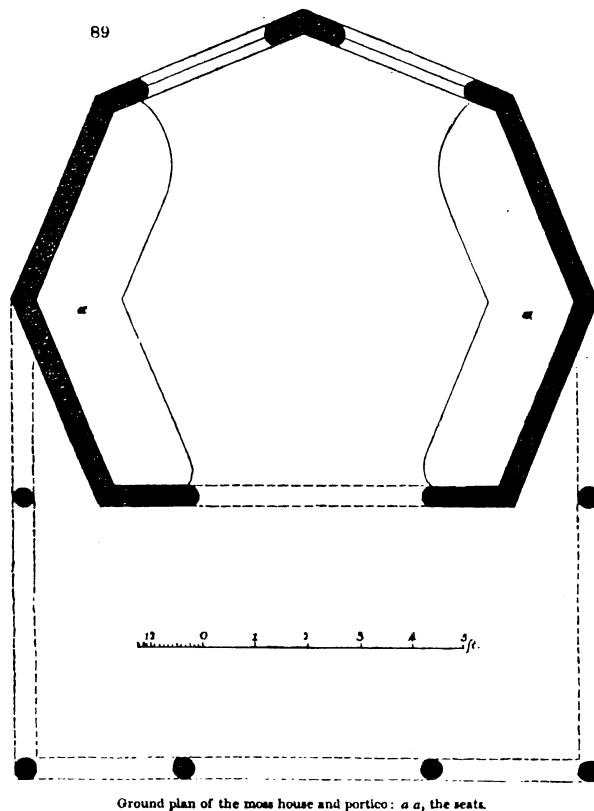
#### References

- (1) Hunt, F. (ed.) (1964). The Shell Gardens Book. Phoenix House, London.
- (2) Alexander, J. (1835). Ground plan, elevation, and description of a moss house erected at Murtle, in Aberdeenshire. Gdnrs Mag. 11, 467-9.
- (3) Toward, A. (1834). A description of the moss-house in the flower-garden at Bagshot Park. Gdnrs Mag. 10, 532-7.
- (4) (Loudon, J.C.) (1828). Provincial gardens: Bagshot Park. Gdnrs Mag. 4, 433-7.
- (5) Tripp, F.E. (1888). British Mosses: their Homes, Aspects, Structure, and Uses. 2nd ed. p.26. G. Bell, London.



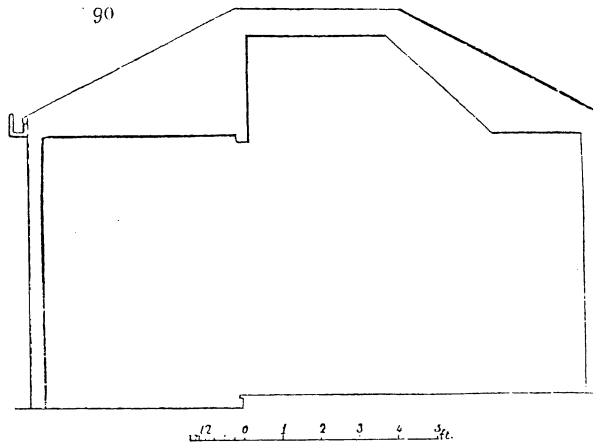
ART. II. *A Description of the Moss House in the Flower-Garden at Bagshot Park.* Designed and executed by Mr. Andrew Toward, Gardener to Her Royal Highness the Duchess of Gloucester. Communicated by Mr. Toward.

I HEREWITH send you a description of the moss house in the flower-garden of Her Royal Highness the Duchess of Gloucester, at Bagshot Park. The form is an irregular heptagon (*fig. 89.*), with a Gothic portico in front, supported on rustic pillars. The ceiling of the portico is inlaid with moss of various colours, representing a star and diamonds, as shown in *fig. 93.*, with a cornice of pinaster cones. The floor under the portico is a copy of the ceiling in different-coloured elliptical-shaped stones of a small size. On each side of the doorway are panels formed in the rustic style with different-coloured woods. The entrance into the house is Gothic; opposite to which are two Gothic windows with stained glass of various colours; under these are four square panels with a large diamond in the centre of each, all formed with moss. Along the sides, between the doorway and the windows, are seats (*fig. 89. a*) made of stained cherry tree: above these is a skirting of rustic wood 18 in. deep (see *l* in *fig. 92.*), the surbase of which projects about three eighths of an inch beyond the moss, to prevent the back from brushing against it. Each side above the skirting is divided into four square panels (see *fig. 92.*), and these into a succes-



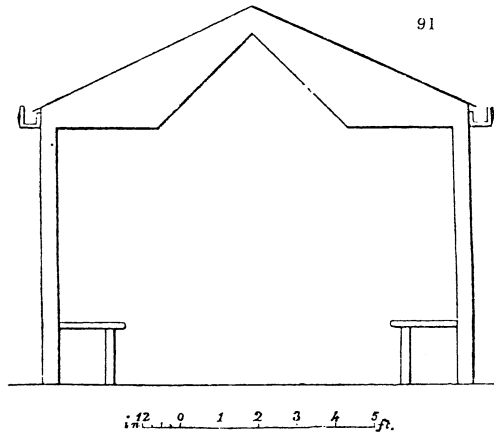
sion of squares (*k*). On the right and left of the Gothic entrance is an oblong panel, with between twenty and thirty of the most common species of moss arranged in horizontal stripes. In the spangles over the doorway are upwards of sixty species of moss and lichens, such as are too diminutive in growth to be incorporated into the body of the work. The whole of the above have been collected in and about this neighbourhood. Over the seats and windows are three horizontal pieces on a level with the ceiling of the portico, with various devices. (*fig. 93. c, d, and e.*) These pieces serve as a kind of plancier to the inner roof, which is a common span, with a gable end over the entrance, on which is represented the elevation of the building. The opposite





Section of the moss house from front to back, showing the interior and exterior roofs.

end is hipped in, and has the figure of the English crown. The whole of this design is executed in party-coloured moss. The



Section of the moss house from right to left, showing the seats and the inner and the outer roof, with gutters, &c.

ceiling of the span part of the roof is inlaid with light-coloured mosses in the form of diamonds.

All the styles, rails, and munnings of the panels are formed with *Cenomyce rangiferina* (or reindeer lichen), which grows in great abundance on Bagshot Heath. The ridge of the outer

roof is about 4 ft. in length, with six hips and projecting eaves; the plancier is of rough bark; and the fascia of pinaster cones, within which is a gutter to carry the water to the back part of the building.

I have to remark, that, had the whole structure been one foot higher, it would have appeared to much greater advantage: the walls are barely 7 ft., and they ought to have been nearly 8 ft. in height.

Fig. 94. is an elevation of the moss house, showing the situation of the window, the seats, the outer cornice of pine cones, floor of the portico, &c., mentioned above.

Fig. 89. shows the ground plan of the moss house and portico; *a a* are the seats.

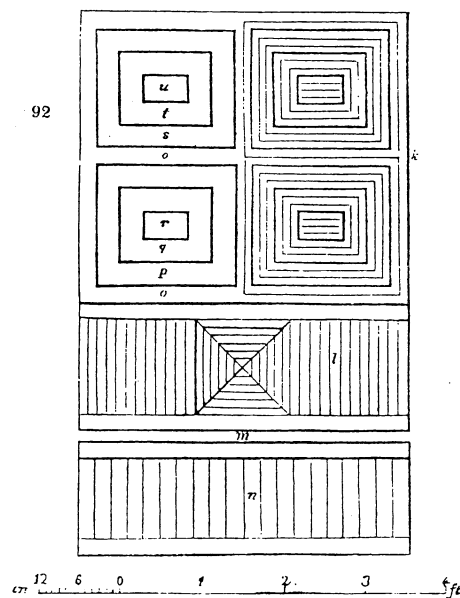
Fig. 90. is a section of the moss house from front to back, showing the interior and exterior roofs.

Fig. 91. is a section of the moss house from right to left, showing the seats, and the inner and the outer roof, with gutters, &c.

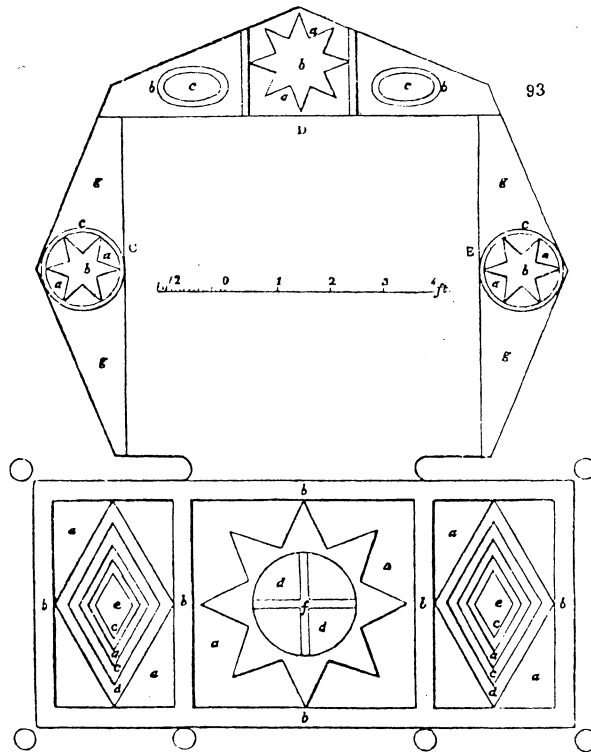
Fig. 92. is a sketch of one of the sides. In this figure, *k* shows the disposition of the rods before the moss is introduced

between them; *o* is *Cenomyce rangiferina*; *p*, *Hypnum Schrëberi*; *q* is *Dicranum glaucum*; *r*, *Brÿum hörnum*; *s*, *Sphágnum acutifolium*, pink var.; *t*, *S. obtusifolium*; and *u*, *Brÿum cuspidatum*. *l* is the rustic skirting above the seat; *m*, the seat; and *n*, the rustic-work under the seat.

Fig. 93. is a plan of the ceiling to the portico, and of the horizontal part of the ceiling of the interior. In this figure, *c d* and *e*

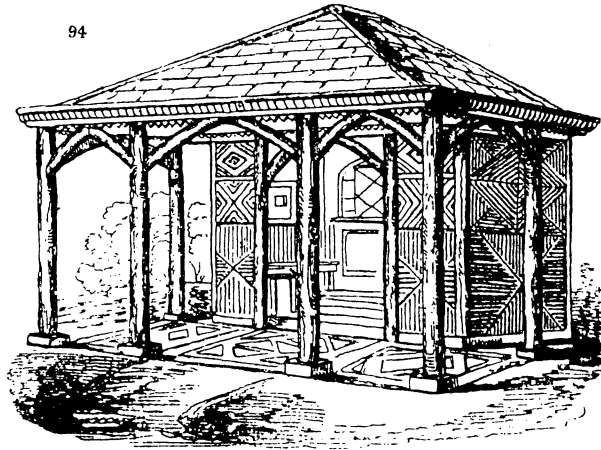


are the horizontal panels in the ceiling of the interior, over the



seats. The patterns in these panels are formed by round rods, as above described, between which are introduced the following kinds of moss: — *a*, *Bryum hörnum*; *b*, *Cenomyce rangiferina*; *c*, *Sphagnum acutifolium*, pink var.; *d*, *Sphagnum obtusifolium*; *e*, *Dicranum glaucum*; *f*, *Bryum cuspidatum*; *g*, *Hypnum squarrosum*; *h*, *Dicranum scoparium*. The same letters refer to the ceiling of the portico.

The following is the method in which the work is performed. The first thing necessary, before commencing operations, is to have an even close-boarded surface to work upon; and upon this ground draw whatever figures, forms, or devices you intend to represent. The next thing is to get round rods, about half an inch or five eighths of an inch in diameter, nearly of equal size, and well seasoned. These rods are to be nailed on agreeably to the drawing, about an inch from centre to centre, this



being the average space, though it is necessary to regulate the distance, in some measure, according to the space allotted for each sort of moss. Each species should be collected separately, when perfectly dry. It must be adjusted by placing the top of each piece as evenly as possible, and cutting off a part of the root end, if it should be found too long. Take a small quantity at a time, and ram it in between the rods with a blunt wedge-shaped piece of wood. The round rods act as a dovetail; and, if the moss be properly rammed in, it cannot be pulled out again without tearing it to pieces. The bottom part being compressed between the rods, the top expands, and so completely covers the rods that not a vestige of them is to be seen in the whole building. Its evenness of surface, closeness of texture, and variety of colour give moss thus arranged an appearance not unlike that of a Turkey carpet. The most common species of moss adapted for the purpose are, *Cenomyce rangiferina*, the pure white of which contrasts well with that of most of the other sorts; *Dicranum glaucum*, whitish green, and *Bryum hornum*, yellowish green, these are two of the best, and quite distinct in colour; *Sphagnum acutifolium*, the pink variety, and *S. obtusifolium*, yellowish white, form a striking contrast with the greater part of the others; *Bryum roseum*, pink, *B. cuspidatum*, light green, *Dicranum scoparium*, deep green, *Hypnum Schröberi*, reddish, *H. squarrosum*, bright green, are all good; and *H. loreum*, bright green, *H. triquetrum*, yellow-green, *H. (Léskea) dendroides*, yellowish green, and some others, serve to make a variety.

*Bagshot Park Gardens, July 10. 1834.*

BRYOHISTORICAL PROJECT : INTERIM REPORT 1985/86

The objectives of this Project were given in Bulletin 43, 29-32, and the last Report appeared in Bulletin 46, 29. Since then a further 11 members have written offering help and information. This splendid response has been most welcome and shows that there is increasing interest in the Project. Details of these responses have been summarized in Bryohistorical Newsletter No. 3, issued December 1985, which is available free to any member who sends a stamped, self-addressed envelope (at least 9" by 6½") to Mr Len T. Ellis, Department of Botany, British Museum (Natural History), Cromwell Road, London SW7 5BD.

As a number of members are keen to provide details of their personal herbaria, a simple form has been prepared on which to record the required information. Copies are available free of charge from the undersigned. The form is divided into two parts: the first for the minimum amount of information required; and the second for optional extra details about collectors and contents. As information about collections accumulates, a picture should emerge of the extent of material in private hands. The author regards these collections as a very valuable natural resource from which a surprisingly large amount of information on the biological state of plants at the time of collection can be obtained. It should be remembered that it is the totality of the holdings, rather than any one particular specimen or collection that gives this resource its real value. So it is hoped that as many members as possible will send details of their collections, particularly as the first section of the form can be completed in a very few minutes.

There is one other way in which members interested in participating in the project could help at the moment. The author wants to obtain a list of the names of all who have contributed new vice-county records and/or sent specimens to the Annual Exchange. It seems that the easiest way such a list can be compiled is by extracting the names from the lists published in the Moss Exchange Club Reports, the BBS Reports, the Transactions, the Journal of Bryology, and latterly the Bulletin. Clearly it is a big job for any one person to undertake, but if a number of members were each prepared to extract a limited number of volumes (or parts) the necessary information could be obtained over a period of time. As little as an hour a week would yield a surprising amount of worthwhile results quite quickly. Anyone willing to help is asked to get in touch with the author who will send the necessary materials for undertaking this work.

S.W. Greene, Department of Botany, The University, London Road, Reading RG1 5AQ, Berkshire.

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REQUEST FOR MATERIAL OF SPHAGNUM IMBRICATUM

Mark Hill is revising the distribution of Sphagnum imbricatum, which has recently been divided into two very distinct subspecies. He wishes to prepare distribution maps and will gladly identify the subspecies for any member who sends material for checking, provided that the specimens are localized adequately for mapping. Specimens will be returned promptly.

Please send specimens to Mark Hill, ITE, Penrhos Road, Bangor, Gwynedd, LL57 2LQ.



SPECIAL VOLUME No.1, 1985

Proceedings of the Jubilee Meeting held in Bedford College, London, 17 - 18 September, 1983.

Edited by R.E. Longton and A.R. Perry

This volume, of approximately 90 pages, contains the seven papers presented at the Diamond Jubilee Meeting, plus brief accounts of other activities which formed part of the Jubilee celebrations. It includes a photograph of participants. Distinguished bryologists who contributed papers include the First Vice-President and the Secretary of the International Association of Bryologists, the Chairman of the Working Group for Mapping Bryophytes in Europe, the President for 1983 and three Past Presidents of the British Bryological Society. The papers are:

The British Bryological Society 1923-1983, by Professor P.W. Richards

A causerie on bryological societies, by Dr H  l  ne Bischler and Dr S.R. Gradstein

The recording activities of the BBS (1923-83) and their impact on advancing knowledge, by Dr E.V. Watson

Working Group for Mapping Bryophytes in Europe: objectives and potential for British participation, by Professor R. Schumacker

Advances in knowledge of the life strategies of British bryophytes, by Dr H.L.K. Whitehouse

Future developments in bryology, by Dr R.E. Longton

The British Bryological Society and its future, by Dr S.W. Greene

Copies may be obtained initially at  4.50 (+50p p. & p. inland) until 31 May, 1986 from A. R. Perry, National Museum of Wales, Cardiff, CF1 3NP. Thereafter they will cost  6.00 (+ p. & p) from the BBS Librarian.

#### A German Excursion Flora

Now available is Exkursionstaschenbuch der wichtigsten Moose Deutschlands by Ruprecht Duell, 273 pp., 66 text figures, Rheurdt 1985. This is described on the title page as 'Eine Einf  hrung in die Mooskunde, mit besonderer Ber  cksichtigung der Biologie und   kologie der Moose: f  r die Lupenbestimmung der leicht erkennbaren Arten im Gel  nde.' There are descriptions (in German) of 142 species of mosses and liverworts with accompanying notes on ecology and identification.

The book is available at  7.50 + p. & p. from A. R. Perry, National Museum of Wales, Cardiff, CF1 3NP, U.K. For those that have already acquired a copy (such as those people who bought it on the Bavarian excursion in 1985) there is a correction sheet available which may be obtained by sending a 12p stamp to Roy Perry.

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#### DEATHS

BRENAN, J. P. M., Kew  
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SCOTT, Miss L. I., Yeovil  
UDAR, Dr Ram, Lucknow

#### RESIGNATIONS

BATHAY FIELD STUDY CENTRE, Ambleside	MARSDEN, Mrs M. V., Coleford
BURGOINE, Mrs M. M., Coventry	PAGE, Miss S. E., Nottingham
CHADWELL, C. A., Slough	REDWOOD, Mrs B. C., Chester
CLARK, T. P., Westhoughton	RIMES, Miss C., Hull
CURRALL, Mrs A., Bradford West	SYRATT, Dr W. J., Old Windsor
FREESE-WOUDENBERG, Mrs L., Amsterdam	WARLAND, A. L., Witney
GARLICK, G. W., Yate, Bristol	WARLAND, Mrs M. R., Witney
KING, R. W., Stockport	

#### DELETIONS

Du FEU, Miss E. H., Jersey	van der REIJDEN, W. R., Eyemouth
HIROHAMA, T., Japan	SCHUSTER, Dr R. M., Amherst

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*Edited by*

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