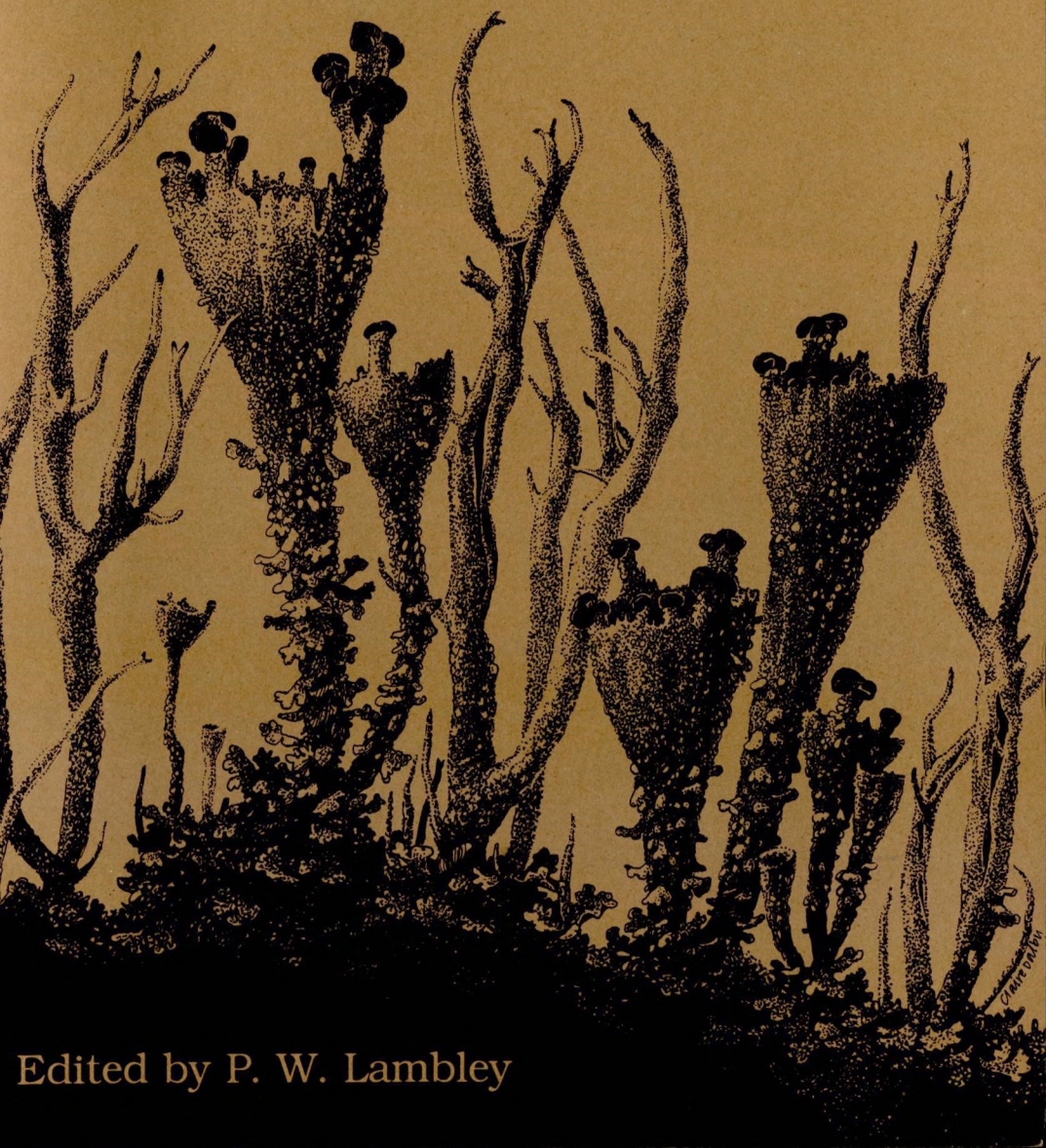


# BRITISH LICHEN SOCIETY BULLETIN

No. 84 Summer 1999



*Clare Lambley*

Edited by P. W. Lambley



## FORTHCOMING BLS MEETINGS

### HELMSDALE

Leader Tony Fletcher

KIRKBY STEPHEN

Leader Peter Lambley

7th - 14th August 1999

22nd-25th October 1999

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**SUBMISSION DEADLINE - 20th September 1999**

Cover artwork by Claire Dalby



## VISIONS OF SYSTEMATIC AND ORGANISMAL LICHENOLOGY IN THE NEXT CENTURY

The next century is rapidly approaching. The last half century has seen a remarkable array of developments in lichenology: isolation and independent culture of the algal (including cyanobacterial) and fungal partners, resynthesis of lichens from their bionts, carbohydrate transfer between the bionts proved, thin-layer chromatography, scanning electron microscopy, computerised mapping, cladistics, molecular biology, integration of classification and indexing with the system for fungi as a whole, revisions of generic and species concepts on a massive scale, recognition of the diversity and extent of lichenicolous fungi, demonstration and acceptance of lichens as bioindicators of pollutants and forest continuity, the inclusion of lichens in legislation, the formation of the IAL, BLS and other national lichen societies, and a resurgence of checklists, manuals and reference works of all kinds. Against this backcloth speculation is clearly hazardous, but a pivotal date stimulates reflection on trends and how they may be projected into the future.

Here I posit personal visions of how 12 aspects of systematic and organismal lichenology may progress in the first decades of the 21st century. None may prove correct, and some may be wishful thinking or mischievous, but sensitisation to these views may provoke debate, and perhaps influence or accelerate lines of research or implementation.

**(1) The individual:** Single lichen thalli will increasingly prove to be mixtures of genetically different fungal partners usually, but not always, of the same species, as well as of different algae (and cyanobacteria). Proofs will come from molecular studies, field-workers will start to be less dismissive of 'intermediates', and the numbers of 'mechanical hybrids' documented will escalate. More cases in which the same fungal partner forms associations with different algae will emerge as the taxonomy of the algal partners advances.

**(2) Environmental modifications and ecotypes:** Transplant, ecophysiological, and molecular studies, will combine to demonstrate that some environmental modifications have a genetic basis; some will be expressed ecophysiologicaly rather than morphologically. This will have implications for re-establishment programmes and comparisons between work conducted on the 'same' species.

**(3) Generic and species concepts:** Generic concepts, especially of foliose macrolichens, will continue to be unstable and a source of controversy for the next decade. Consensus will then emerge as molecular data are found to correlate with fundamental features of the fungal partner, notably in the ascomata and conidiomata. Morphological species concepts will remain the norm, chemotypes not being accepted at species level unless there are morphological or anatomical correlations; this will hold true as incompatibility groups (i.e. biological species) are discovered to be widespread in lichen-forming just as they are in other fungi. More algal/cyanobacterial pairs of 'species' with a single fungal partner will



be recognised, and the practice of trying to name them separately will be abandoned. Sexual hybrids will be increasingly recognised, and many 'species' found to be genetically identical clones - especially amongst those that lack ascomata and only reproduce by dual propagules. Molecular work will test the 'species pair' hypothesis and reveal that some reputed cases are more complex than might at first appear.

(4) **Changing names:** Name changes for taxonomic reasons will continue, but procedures will gradually be implemented to reduce those for historic or nomenclatural reasons which do not reflect new scientific knowledge. These will include protected Lists of Names in Current Use, the registration of newly proposed names, and expanded lists of conserved and rejected names. Taxonomists will become increasingly frustrated over the time they have to spend on nomenclature, and support for the *Draft BioCode* will grow; it will be accepted at the 2005 or 2011 International Botanical Congress as the basis for the regulation of newly published names. Users, especially conservationists, will become increasingly frustrated with name changes of all kinds and demand names in common languages; names will be coined, but this will lead to difficulties in communication between lichenologists of different linguistic traditions as they start to drop the scientific names.

(5) **Bioindication:** Bioindication of sulphur dioxide air pollution with lichens will be expanded in developed and especially developing countries as the links between pollution patterns, human mortality and ecosystem health are increasingly recognised. The European Environment Agency will introduce regulations incorporating lichen bioindication which relate to sulphur dioxide and ammonia emissions. Large scale radionuclide monitoring programmes will be established as public concern over possible contamination from old nuclear power plants rises. Microanalytical devices will be developed enabling heavy metal concentrations in lichen thalli to be recorded directly in the field. The value of lichens as an indicator of water quality will be recognised. Applications in assessing ecological continuity in temperate and boreal forests will expand and become a key part of the assessment of the conservation value of tropical forests.

(6) **Biotechnology:** Ways of increasing the speed of production of biomass of the fungal partners of lichens in pure culture will be developed, and some will be used in commercial biotransformations. However, the emphasis in biotechnology will be on genetically engineering genes coding for enzymes in secondary metabolite pathways in lichens into faster growing moulds or yeasts. An increasing array of 'lichen products' will be found to have beneficial bioactive attributes, especially as antibiotics; several will be used in trials on humans, and 3 or 4 will come into widespread use.

(7) **Recording distributions:** Hand-held global positioning devices will become routinely used in fieldwork. Voice recognition systems will enable species lists to be dictated in the field and passed automatically into a central publicly accessible database. Individual lichenologists will be able to access this information free of charge at home through personal computers linked to the Internet; personal computers will have software and



capacity to enable downloading on a massive scale and the production of maps at scales down to one metre square. In the UK the national Biodiversity Information Network will become established with government or lottery funds and broaden the base of those inputting data into the national schemes. This will lead to problems of data quality control as the number of misidentifications will rise.

**(8) Exploration:** The number of lichens known in Great Britain and Ireland will plateau at around 1,800 species (excluding lichenicolous fungi) by 2025. The rate of description of new lichens from the tropics will accelerate, especially as in-country expertise develops and exploration is less dependent on occasional short-term visits by overseas specialists. The world total will reach 16,000 species by 2025. However, the number of genera new to science discovered (as opposed to being segregated from already known genera) will plateau. The number of lichenicolous fungi known will continue to grow exponentially, and may be expected to double and reach 2,000 by 2025. Restrictions placed on collecting biotic materials of all kinds by particular countries will limit the freedom of exploration traditionally widely enjoyed by lichenologists; collecting visits will require advance permits and agreements on the place of storage and use of material collected. Increased attention will be given to crustose lichens on rocks, especially in the tropics and on rocky coasts where these are largely neglected. Stimulated by the Convention on Biological Diversity and the Global Taxonomy Initiative, more developing countries will prepare checklists and identification manuals, and further develop national collections; there will be demands for data and specimen repatriation.

**(9) Conservation:** Lichens will receive increased emphasis in wildlife protection legislation, and will be included on Schedule 8 of the Wildlife and Countryside Act 1981 and equivalents in other countries. As Red Lists are produced, more sites will be protected as Sites of Special Scientific Interest (SSSIs) for their lichens. Conservationists will increasingly use lichens as indicators of ecological continuity in site assessments not only in forests but other habitats. The sites with the longest history of continuous presence of particular lichens will be recognised by the numbers and rarity of the lichenicolous fungi growing on them. Increased attention will be accorded to invertebrates that are lichen-dependent, particularly nematodes.

**(10) Integration:** The integration of lichenised fungi into the general system of fungal classification, which started in earnest only in the 1980s but is already the norm, will stabilise as molecular data resolves the positions of families and genera currently of uncertain affinity. Supraordinal categories will gradually be introduced as the data sets justify them. The number of families and genera which include both lichen-forming and other fungi will continue to swell and the weighting given to lichenisation in classifications will decrease further; indeed many bark-inhabiting lichens will be found to obtain a substantial proportion of their carbohydrates directly from bark not from their algal partners. More fossil lichens will be discovered, especially from the Silurian and Devonian, and involve zygomycete as well as ascomycete fungal partners; lichen-like associations will



in debates on the first forms of terrestrial life. Scientists involved in global ecology will start to pay more attention to lichens as weathering agents and carbon sinks. The number of national lichenological societies will continue to grow. But while mycological societies, journals and textbooks will give more attention to lichens, sadly many lichenologists will continue to be insular and rarely join mycological societies; opportunities for synergism will occur but remain infrequent. Nevertheless, lichenologists will increasingly become involved in interdisciplinary societies and initiatives. Strains will develop in societies covering bryology and lichenology and these will split early in the century.

**(11) Information:** Information will increasingly be obtained through the Internet. In addition to current awareness services, original articles will first be published electronically and later as hard-copy for archival purposes. Lichenologists will be able to make their own results and raw data available without the rigours of peer review; this will cause increased difficulty amongst non-specialists of assessing what is sound. Lists of currently accepted scientific names with their synonyms will be accessible through databases linked through SPECIES 2000, and all published names given to lichen-forming fungi will be downloadable - including those recently registered. Photographs, including photomicrographs, and also line drawings and descriptions, will be available through some of these databases. Individuals will be able to comment on the papers of others electronically, and to add to descriptive databases and keys.

**(12) Workforce:** The numbers of professional taxonomists in developed countries will continue to decline into the first decades of the century; further, those in post will increasingly have to concentrate on externally funded short-term projects. By the middle of the century crises will lead to the opening of new positions under pressure from conservationists and those from overseas wanting training. Highly skilled 'amateurs' will increasingly be the main source of knowledge on the distribution and ecology of lichens in developed countries. However, the 'amateurs' will become frustrated at the lack of professional help on which they can call. In less developed countries, the number of professional lichenologists will increase, following the trend already in train, and there will be a more heightened demand for postgraduate training and fellowships in developed country institutions.

David L Hawksworth

## JANUARY MEETINGS 1999

### Evening buffet

About thirty members attended a sumptuous buffet with cold salmon, cold meats and salads followed by a range of delicious desserts held in the elegant and historical rooms of the Linnaean Society, Piccadilly, on the evening of Friday January 8th. The event celebrated the 40th anniversary of the establishment of the British Lichen Society. To mark the occasion the following founder members: David Streeeter, Jack Laundon, Sir David Smith, Mr & Mrs Fred Haynes, Michael Proctor and Kery Dalby were present as guests of the Society. After an introduction and welcome from the President, Peter Crittenden, Mark Seaward spoke on the early years of the Society and the personalities who had done so much to make the Society such a success. He began by highlighting the achievements of the invited guests enlivened with various anecdotes. He followed with references to others now dead, including Frank Brightman, Fred Sowter, Dougal Swinscow and Arthur Wade, people who had become legends within the Society. He then proposed a toast to the guests and the Society. This was followed by a quiz, which was won by the team led by David Hawksworth (see p. 18).

### 1999 Annual General Meeting

In keeping with previous meetings, the minutes are circulated as a separate sheet.

The formal business was followed by an account by Frank Dobson of the Society's new biobase system which it is hoped to trial in the next few months and which, in due course, will be available for sale to members.

### Exhibitions

Following the AGM members were able to browse among the exhibits in the library at their leisure over coffee and biscuits.

They included a display by Brian and Sandy Coppins of *Hypogymnia vittata*, a species new to Britain, which they discovered on Ferry Links in the Loch Fleet NNR near Golspie, Sutherland. It was associated with species such as *Psoroma hypnorum*, *Thamnolia vermicularis*, *Ochrolechia frigida*, *Peltigera leucophlebia*, *Coelocaulon aculeatum* and *Hypogymnia physodes*.



Frank Dobson demonstrated his mammoth project of developing lateral keys to the lichen biota which he is undertaking in association with Seale Hayne College near Exeter. Howard Fox had a display of the Lichens of Powerscourt waterfall and deer park in Ireland.

Alan Fryday showed an experiment on the effects of grazing on *Nephroma arctica* using cages made from upturned hanging baskets.

Neil Sanderson had copies of the New Forest Data base which he had been developing.

## Lectures

The afternoon session consisted of four talks on specialist habitats. The presentation of all the talks was of a very high standard with new observations, thought-provoking ideas and was enhanced by good slides. It was particularly pleasing to hear a vintage talk by Oliver Gilbert so soon after his serious illness.

### Watch those Niches!: Brian Coppins

Brian began by trying to define a niche. These included niche - recess in a wall, suitable place in life or nature. However, the one he favoured was from Chambers Dictionary where it was defined as 'place in the market not subject to the pressures of competition'. This he felt was closest to the term as used in a lichenological sense.

The early stages of colonisation and development which we do not know very much about this stage are critical. This was illustrated by a splendid photograph of *Xanthoria* on a brick wall where, although it was growing on both the brick and mortar, it had clearly started on the latter. Other examples included *Pannaria ignobilis* in crevices of bark where it is often on mats of cyanobacteria, *Diploschistes muscorum* on *Cladonia pocillum*, and *Lecanora sulphurea* often on *Tephromela*, illustrating the point that lichens require one set of conditions for establishment and one for growth and development. These may be the same but not necessarily. Niches can be created by natural change, for example, those resulting from the growth of an oak sapling to an old tree. Man also has created many niches, for example, *Caloplaca teicholyta* is a local mainly coastal species on natural substrata, but has been able to spread widely to artificial habitats like churchyards. *Bryoria furcellata* is a rare species of Scottish pine forests but apparently favours posts used for deer fencing in its limited range. The presence of such a niche provides an opportunity to increase the population by putting in more posts which can then act as a new substrata for colonisation.

*Caloplaca luteoalba* provides opportunities for studying the changing frequencies of niches. It is a species which probably reached its zenith in the nineteenth century before artificial fertilisers were widely used and when parklands were in their heyday. Quite where it grew in the wild wood is difficult to ascertain. Now, in Scotland apart from some elms in the north-east, it is restricted to a couple of walls and sycamores. The absence of earlier records from this tree is probably a reflection of observer bias rather than reality.

Mineral workings provide many examples of niches with some species favouring copper-rich and others iron-rich rocks. Pinewoods have a suite of species which favour dry crevices and some, the *Caliciales* in particular, occur in comparable niches on oaks. Even in the flat-lands of East Anglia, there are habitats for these species on tree stumps on the side of ditches.

The heather moors of northern England and Scotland generally provide few habitats for calcicole species and bones and discarded antlers are therefore important in this respect. Water-filled hollows in limestone provide a specialist habitat for *Lempholemma cladodes*. Other niches occupied by specialist species include hollow tree trunks, a habitat for *Ramonia nigra*, and leaves, a habitat for *Fellhanera bouteillei*.

#### **Lichens on Airfields: Oliver Gilbert**

Oliver began by outlining the history of airfields in Britain. Before 1939 most were grass strips, only nine had hard surfaces, but by the end of the war there were some 440 airfields, of which the majority had such a surface so they could carry heavy bombers. They were built to a standard plan with three main runways arranged in a triangle plus perimeter tracks and dispersal points, normally 36, enough for two squadrons. The main runways, 'peris' and dispersal points were made of concrete usually covered in tarmac, whilst the rest of the airfield was generally left unsurfaced. In 1978 only 8% of the former military airfields were still active. Although the majority have been abandoned, they are very rarely totally unused, being in part occupied by gliding clubs, industrial estates, used for car race tracks, for farm storage, caravans, etc.

Lichenologically they appear to divide into an eastern and a western group. The eastern ones, usually surrounded by arable fields, are heavily eutrophicated and mirror the flora of asbestos roofs. Common species present include *Lecanora muralis*, *L. dispersa*, *L. campestris*, *Caloplaca citrina*, *Lecidella stigmatea*, *Physcia caesia*, *Candelariella aurella* and *Rinodina gennarii*. Several other *Caloplaca* species favour this habitat including *C. isidiigera*, *C. ceracea*, *C. arenaria*, *C. crenularia* and *C.*



*crenulatella*. The last has apparently been overlooked until very recently, previously known only from one record in Cumbria. It is distinguished by having a very narrow septum in the spores compared with other *Caloplaca* species, except for *C. lactea* and *C. luteoalba*, whose spores are shorter. The eastern habitats are otherwise not very special.

A feature of the runways is that they are cross-drained which creates a gradient from dry to damp, silty and bryophyte-rich. Damp margins have 6-7 *Cladonias*, *Peltigera didactyla*, and *P. rufescens*, together with *Collema* and *Leptogium* species. Metal gratings are acidic with *Porpidia tuberculosa*, *Rhizocarpon obscuratum*, *Scoliosporum umbrinum*, *Buellia aethelea* etc. *Bacidia delicata* was present on the side of a grating. On sites surrounded by heathland, *Lecanora polytropha*, *Baeomyces rufus*, and *Stereocaulon pileatum* occur. The tarmac appears to leach with age to a pH of c. 5.

The western group lie west of a line drawn from the Tees to the Exe. Between them they have 10-12 species of *Parmelia* of which *P. conspersa* is the most common. Others include *Parmelia revoluta*, *P. britannica*, *P. perlata*, *P. loxodes*, *P. verruculifera*, *P. saxatilis*, *P. glabrata*, *P. pastillifera*, and *P. mougeotii*. These species cover over 90% of the runway surface being dramatically abundant. Oliver has noticed a parallel between the flora of basalt outcrops and old tarmac and thinks this is worth investigating further.

There were a few gems at Smeathorpe and Dunkeswell airfields in Devon. Species found there included *Peltigera neckeri* and *Physcia sciastra*, the latter only the second southern England record and the first in fruit in the UK. It was unusual in that most other records are from stream or lake sides. A *Staurothele* was found resembling *S. fissa*, a species which favours streamsides and is also calcifuge; this one, in contrast, is a calcicole. It has proved to be *Staurothele frustulenta*, the first record for Britain. *Leptogium corniculatum* at Winkleigh airfield was a good find by Barbara Benfield, again in an anomalous habitat in that previous records were from sand dunes and streamsides.

In summary, this is a major saxicolous habitat in areas which are otherwise intensively farmed. Despite their recent origin, they have interesting species, some previously overlooked and some genuinely rare. They present good opportunities for ecological research. Oliver finished with a warning that they could become rather addictive.

## Timber structures, posts and palings: Vince Giavarini

Vince had records of 270 species from this habitat of which 45% had been recorded from churchyards. It is of interest that Steve Chambers working in Wales had recorded 20% of these from disused mine workings. However, only *Bacidia subcircumspecta* is known to be restricted to this substratum.

Ecologically determining factors which are important include the extent to which the timber has been treated, length of exposure in the field and the physical and chemical properties of the wood used. The phytosociology is a reflection of the nutrient status.

He began to describe the different situations where this flora occurs. Panel fencing, which is widespread throughout Britain, can support species such as *Calicium glaucellum*, *Chaenotheca ferruginea*, *Lecanora varia* and *Strangospora moriformis*.

In maritime situations at the back of saltmarshes species such as *Xanthoria parietina*, *X. polycarpa*, *X. candelaria*, *X. ucrainica* and *Physcia aipolia* can be very frequent, sometimes with *Parmelia exasperata*, *P. subrudecta*, and *Physcia semipinnata* present. Near gull colonies *Lecanora dispersa* is abundant. *Rinodina gennarii* is often present in mildly polluted areas and replaces *Catillaria chalybeia* on timbers along the Humber estuary. Fence posts at Burnham Overy in north Norfolk had *Xanthoria calcicola*, *Cliostomum griffithii*, numerous *Lecanora* crusts, some Pd+ red, and a species of *Caloplaca* resembling *C. rudorum* which proved to be *C. maritima*. A number of normally saxicolous species are found on posts including *Lecania atrynoides* in Scotland. A rare maritime timber post specialist which should be searched for is *Rinodina pyrina*.

Inland communities in lowland areas are often affected by eutrophication and are dominated by the *Xanthorion*. Less common species in these habitats include *Parmelia soredians*, a species which appears to be spreading, and *Hyperphyscia adglutinata*, plus crustose species such as *Pertusaria coccodes* and *Ochrolechia turneri*. Some types of posts absorb moisture and retain it for long periods making it attractive to *Gyalideopsis anastomosans*.

In moorland areas red-fruited *Cladonia* plants on posts are frequent indicators of advanced-stage communities, whilst pine posts often attract *Usnea* species. He had noticed a decline in *Cetraria chlorophylla*, once common on such posts. Other species on this habitat in the uplands include *Buellia pulverea*, *Bryoria fuscescens*, *Mycoblastus sanguinarius* and *Platismatia glauca*. In the south, acid sites buffered from the worst effects of eutrophic dust by dense blocks of forestry plantations have fence posts with *Foraminella ambigua*, *Imshaugia aleurites*, *Lecanora piniperda*, *Micarea malaena* and *Cladonia portentosa*.

Vince expressed his concern over tannalised wood products and their widespread deployment and appealed to the membership to be more vigilant in recording lichens from worked timber in future.



## Lichens of snowpatches: Alan Fryday

Unlike the previously discussed communities, this habitat is not on the doorstep. It is difficult to reach and has been neglected as a subject for study.

Although, climatically, the west of Scotland is more suited for the formation of snow beds, they are generally better developed in the east due to the underlying topography of large plateaux providing the necessary 'gathering grounds'. The speed at which snow patches disappear varies very much from year to year but the pattern of snow-melt is always the same. Not surprisingly the ground on the slopes above is generally drier than those below and supports distinctive lichen communities.

Comparisons between the lichen communities in continental Europe and Scotland show some clear differences. The vegetation described as being characteristic of the habitat in Southern Norway would be considered as general montane vegetation in the central Highlands and is mostly absent from the wetter west.

The *Nardus stricta* grassland (U7 of the National Vegetation Classification) is usually considered to be a snowpatch-community in the east in Britain, as it is associated with the moister ground. However, in the west of Scotland, which is much wetter generally, it is associated with drier ground and avoids snow-patches. At Creag Meagaidh in the central Highlands the snow-bed species (e.g. *Frutidella caesioatra*, *Micarea paratropa* (= *M. subviolascens*), *Stereocaulon saxatile*, *S. tornense*) extend right through to the *Nardus* zone and, further west still, these species are to be found widely distributed on summit heaths. However, in the Cairngorms they are either absent or confined to snow-beds, presumably as they require the damp conditions which occur there. Tops of boulders support the most distinctive community, which is apparently confined to this habitat throughout the Scottish Highlands (eg *Amelia andreaeicola*, in ed., *Lecanora leptacina*, *Lecidella bullata*, *Miriquidica griseoatra*). Although most of the individual species are known elsewhere in Europe, they do not occur together there, nor around snowpatches.

In the Cairngorms the lichen communities appear to be zoned with those on tops of large boulders, together with those on small rocks and boulders, close to the snow-bed. Towards the outer edge of this the terricolous microlichens occur but these disappear in the *Nardus* grassland as they cannot compete with vigorous vascular plant growth and are replaced by terricolous macrolichens (eg *Cladonia* species, *Cetraria islandica*). Beyond the *Nardus* the microlichens reappear.

Species diversity in montane areas is much greater in the cryptogams than vascular plants. Snow-beds, in particular, regularly support over 100 lichen and bryophyte species, but less than 20 vascular plants. Many snow-beds support over 50 lichens, several of which are currently undescribed and apparently endemic to the British Isles.

It seems that there are three microlichen-dominated communities characteristic of late snow-beds in the Scottish Highlands (i.e. on the tops of large rocks; on small rocks or pebbles; and terricolous). These communities are apparently endemic to those areas of the British Isles with a damp oceanic climate. A further community, dominated by the macrolichens *Stereocaulon saxatile* and *Cetrariella delisei* also occurs in the Cairngorms. These two species are usually described as snow-bed specialists, but their true habitat is confined to the edge of the *Nardus* grassland and they have only circumstantial association with snow-beds.

There are a number of threats to this habitat, including global warming with its consequences for the montane vegetation of Britain. Other concerns are increased recreational pressure and acidification. Because snow is redistributed after it falls and accumulates in snow-beds any pollutants in the snow are also concentrated. Subsequent melting in the spring releases the pollutants in an 'acid shock' of water. As most lichens occur above the snow patch, however this may not be significant for most species.

Alan and Oliver Gilbert have been unable to re-find *Bellemerea alpina*, a species of melt water streams, which Oliver had previously found in the Cairngorms in the 1980s. Alan suggested that this may, therefore, be a victim of increased acidification in the Highlands and now extinct in the British Isles. Finally, the importance of monitoring these sites was briefly discussed.

Compiled by Peter Lambley with help from the speakers.



Fig 1: Founder members at the 40th Anniversary celebration.  
Back row left to right: David Streeter, Sir David Smith, Michael Proctor, Kery Dalby.  
Front row left to right: Fred Haynes, Mrs Haynes, Jack Laundon.



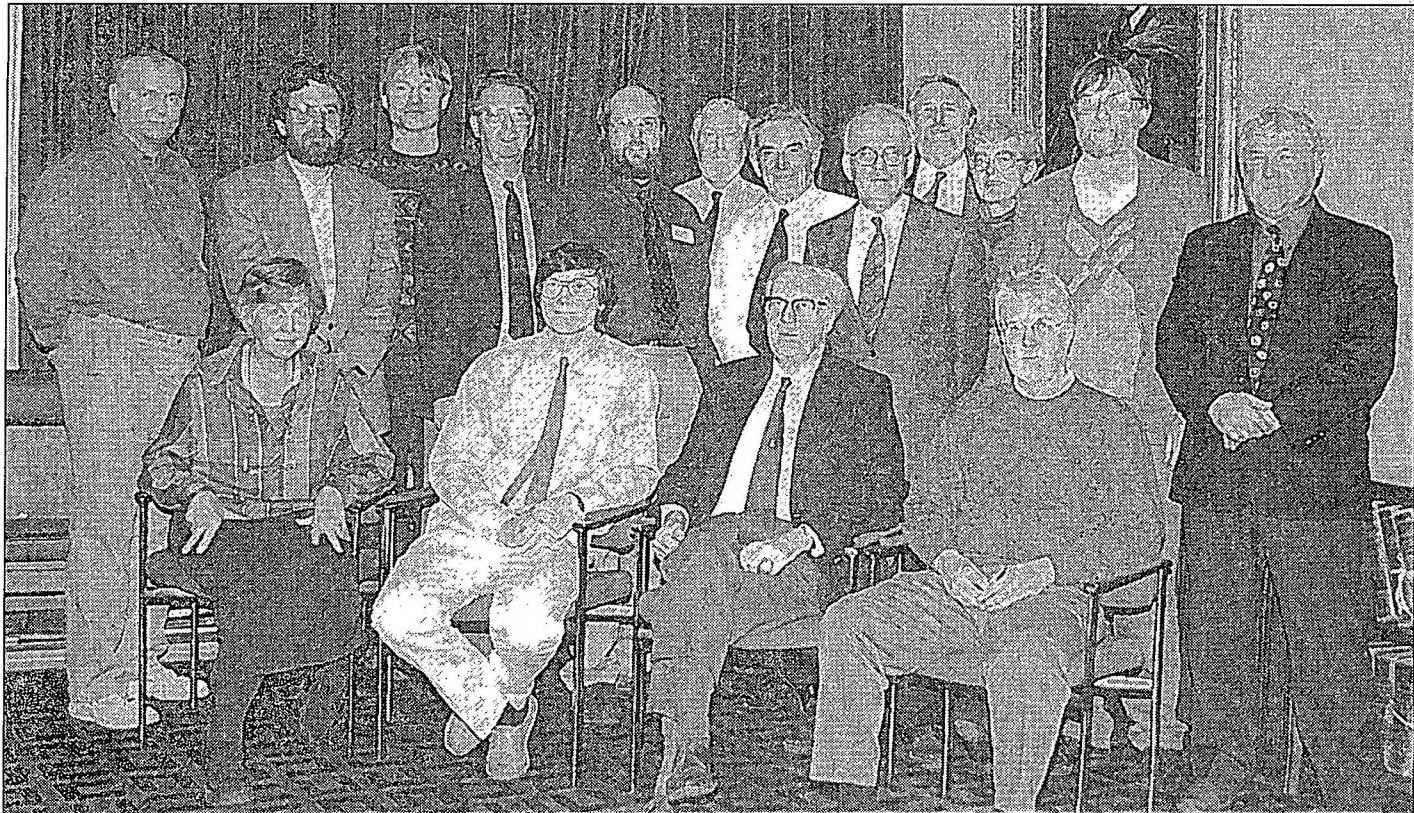


Fig 2: Officers and Council at the meeting January 8th, 1999.

Standing: left to right: Trevor Duke, Peter Schultz, Steve Chambers, Mark Seaward, Mat Wedin, Peter Lambley, Brian Fox, Will Stevens, Lewis Smith, Barbara Hilton, Frank Dobson, Jeremy Gray.

Sitting: Pat Wolseley, Peter Crittenden, Dennis Brown, Tony Fletcher.

## SECRETARY'S REPORT

The most significant event of the year was, without a doubt, the highly successful symposium on taxonomy, evolution and classification of lichens and related fungi held in connection with the AGM, to which we owe particular gratitude to Mats Wedin. This was an historical event bringing together 80 lichenologists from 18 countries. This was the first conference of its kind held in Europe specifically devoted to systematic problems in lichens using traditional and molecular methods. It was particularly heartening to see so many young people below the age of 35 present. Many were from the continent whom I know particularly enjoyed meeting the UK BLS members. Mats and Dennis Brown are also to be thanked for achieving what must be a record - publishing an impressive symposium volume within six months of the conference. Recognising the need to encourage further links between UK and overseas members, at the suggestion of Peter Crittenden, the Society has introduced an Overseas Members' Travel Fund. We have already had applicants for this scheme.

Having managed to attend only one of three council meetings this year, it is certainly time for me to relinquish my post as Secretary. I have now served for nine years and, as I have recently taken on additional responsibilities at work, I can no longer devote the time I would like. The Society receives assistance virtually on a daily basis and it is also important to have fresh ideas. I would particularly like to thank our Assistant Treasurer, Jeremy Gray, for lightening my load considerably when he took over much of the membership activities - thank you, Jeremy. I would also like to thank the Linnean Society for their assistance in organising the AGM in recent years. There certainly has been a symbiotic relationship between the Natural History Museum and British Lichen Society for many years. Many of its staff have played a major role in matters relating to the Society, and continue to do so in many ways. Although NHM, like many institutions, has shrinking budgets and there is a need to seek additional external income, the BLS has never been charged, to the best of my knowledge, for use of rooms for Society AGMs or for using rooms for meetings.

BLS continues to actively support lichenology in so many ways. Council has made a grant of \$1,000 to support production of the new Lichen Flora of North America. This is written by Ernie Brodo and will be lavishly illustrated with photographs by Steve and Sylvia Sharnoff. It is with considerable sadness I report the death of Sylvia recently after a long illness. I am sure her photographs will do much to stimulate interest throughout the world.

Field meetings and workshops continue to be popular and I would like to thank the organisers and leaders for making them such a success. It is particularly gratifying to see increased numbers of overseas members in attendance. I understand over half attending the Kindrogan meeting were from abroad. Let us all continue to work hard to foster the interest of the younger generation.

William Purvis

## BRIAN FOX

Just before going to press the Society received the sad news of the death of Brian Fox, which occurred on Monday, 29th March 1999. A full obituary will appear at a later date.

Peter Lambley

## CONSERVATION OFFICER'S REPORT - 1998

The goals and targets agreed for the year were only partially met owing to a combination of personal accidents and unforeseen demands requiring urgent attention. Consequently pursuit of goal 1, publication of the Habitats Management Book, is seriously behind-hand and now becomes an urgent priority. Re-assessment of site evaluation systems has also been delayed. On the positive side, preparations for the Workshop in the Millenium year AD 2000 and computer-data improvements are in hand, while important meetings and reports on SSSIs and the Wildlife and Countryside Act legislation have been dealt with fully.

A conservation workshop is being prepared to follow up the successful 'Lichen Habitats Management Workshop' (1997). It will deal with methods and progress in monitoring changes in lichen communities, populations and individuals. Orierton Field Centre will be the venue in August/September 2000 AD for 3-4 days, with an associated field meeting. The workshop will interest international members.

Threats to lichens continue to give concern. Comments on the over-collecting of *Cladina* still need substantiating and this weakens our case for protecting lowland heathland populations. The problem of hypertrophication and farming also needs urgent and proper documentation - some serious research is needed here. The 'Millenium Yews' project is causing concern as its proposal to plant a new tree in every churchyard may not be good for their lichens. We have also responded to correct the perception that urban derelict sites are of low wildlife value. Finally, concerns about over-collecting of lichens at BLS field meetings led the committee to urge field meeting leaders to issue firm instructions on the activities of participants, even prohibition where necessary.



The importance of an up-to-date and integrated data system was highlighted by a request from British Waterways for lists of canal bridges of lichenological importance - we were unable to answer it from our present records. However, several members are actively working on the computer system 'BIOBASE', which should allow us to update and make available our records of sites of conservation interest. We have contributed to discussions on the National Biodiversity Network, led by the Wildlife Trusts, JNCC, NERC and others, which seeks to provide an integrated biological recording network using common data standards. A major aim is that data providers, such as ourselves, will make the data available to the public after consideration of their reliability. It is anticipated that the BLS will have a large part to play in this initiative, but our particular needs will be considered only after those of local record centres. Our recommendation that the BLS help to finance the project to computerise Francis Rose's notebooks was accepted by the Council.

The Wildlife and Countryside review (WCA, 1998) added four lichen species to Annex 8, protecting them from collecting and damage: *Alectoria ochroleuca*, *Catolechia wahlenbergii*, *Cladonia convoluta* and *Enterographa elaborata*. Only the Species Action Plan for *Collema dichotomum* is operating nationally at the moment, thanks to the Environment Agency. However, various other species are being dealt with by offices in SNH, CCW and EN. Lists of species are ready for submission to the next tranche of Species Action Plans. We have also been asked to act as lead partner for implementing them. The important consultation documents on proposals to change SSSI legislation in Scotland, and England and Wales, were commented on in detail. Similarly, meetings were attended to discuss proposals to change the method of revising the WCA and written, detailed comments were provided.

Churchyard surveys are ongoing, thanks to the capable team led by Tom Chester. Several committee members have supervised educational lichen conservation projects in various parts of the country. Two members now represent the BLS on the Ancient Tree Forum.

The committee wishes Joy Gadsby a happy retirement, after many years as our minute-taker. Several new members were accepted to fill vacancies, making up the forum to 25. I am grateful to all members for their support throughout the year.

Dr Anthony Fletcher

## FROM THE ASSISTANT TREASURER

### Membership List

A new membership list will be published with the Winter 1999 *Bulletin*. If you are aware of any errors in your name or address please let me know soon.

### Subscriptions from Overseas Members

I know that a number of overseas members receive their winter *Bulletin* and, therefore, the subscription renewal form, too late for their payment to reach me in time for the main mailing of the first part of the next volume of *The Lichenologist*. If you wish to be sure of receiving your copy without delay, then please send your subscription without waiting for the membership renewal form. Subscription rates remain unchanged for 2000.

### Concessionary Rate

The British Lichen Society Council has approved a concessionary annual subscription rate of £10 for unwaged persons. Proof of this status may be required. This will allow full entitlement to all the facilities of the Society as well as the *Bulletin*, but without *The Lichenologist*. Application should be made annually for this concession to the Assistant Treasurer before the 1st January.

J M Gray

## BLS 40th ANNIVERSARY QUIZ 1999

This quiz, prepared by Oliver Gilbert with help from Albert Henderson, was held during the Evening Wine Buffet at the 40th anniversary celebrations at Burlington House. The winners (David Hawksworth's group) scored 17 points.

1. In which year was the current "Lichen Flora of Great Britain and Ireland" published?
2. What is the first genus dealt with in the flora? It is also the first genus listed on the general mapping card.
3. In 40 years, the BLS has had five secretaries. List them. (All are required to score a point.)
4. Which overseas country has the most BLS members?

5. What colours are produced by the dye lichens known as crottle?
6. Where in Britain would you go to look for the lichen *Caloplaca nivalis*?
7. Where on the British mainland would you go to see the lichen *Cladonia mediterranea*?
8. Which British lichenologist is about to name a lichen genus after his daughter Amelia?
9. The preface to which lichen book starts "The publication of this volume has been delayed owing to war conditions ....."?
10. Which is the only British *Lecanora* to have asci that are more than 8-spored?
11. The glossary to the *Lichen Flora* contains the word 'hepaticolous'; what does it mean?
12. Another word in the glossary is 'fabiform'; what does it mean?
13. In the mid-1980s Laundon rocked the lichen world with his studies into the nomenclature of British lichens which resulted in a number of name changes. Two of these involved the genus *Caloplaca*; give one of them.
14. Where is the summer field meeting being held this year?
15. Which British species has ascospores shaped like an aircraft propeller?
16. What is the subject of the first article in the latest part of the *Lichenologist* to be published?
17. What, according to the current checklist, is the largest lichen genus in Britain?
18. In what way have lichens helped the trout fisherman?
19. In which habitat do you find window lichens?
20. Unscramble this anagram of a well known lichenologist. THE VOAT UI

Answers on p. 59.

## SMALL ECOLOGICAL PROJECT GRANTS

A further project has been completed to a very high standard; it is reported on below. Recently applications have been approved for monitoring the Welsh populations of *Thamnolia vermicularis*, for work on the phenology of a range of lichens, and to examine factors affecting species richness and colour diversity of lichens on thirty historic limestone churches in the Cotswolds. This brings to ten the number of small research projects the Society has supported. Short (half page) applications outlining costed proposals (in the range £100-£400) should be sent to Oliver Gilbert, 42 Tom Lane, Sheffield, S10 3PB.

## THE GENUS *RIMULARIA* NYLANDER IN THE BRITISH ISLES

### Introduction

The only species included in the *Rimularia* in *The Lichen Flora of Great Britain and Ireland* (Purvis *et al.* 1992) were *R. limborina* Nyl. and the recently described, *R. fuscosora* Muhr & Tønsberg. However, two further species - *Lecidia gyrizans* and *Mosigia illita* - were mentioned by Purvis *et al.* (1992) as having recently been transferred to *Rimularia* (the latter as *R. badioatra*) while two others, *Lecidea furvella* and *L. insularis*, had already been moved to the genus by Hertel & Rambold (1990), although this placement was not universally accepted in the restricted sense of the genus then current. In the subsequent checklist (Purvis *et al.* 1993) two further species were transferred to *Rimularia*; *Lecidea mullensis* - considered by Hertel & Rambold to be a chemical race of *R. gyrizans* - and *Mosigia intercedens* - which they considered to be the anamorph of *R. badioatra*. Field work in Scotland has shown that several species are more frequent than previously reported and added two further species, the bryophilous *R. sphacelata* and an apparently undescribed species resembling *R. gyrizans* but with larger ascospores. A revised key to the genus is, therefore, required and this is provided here along with notes on the montane/upland species.

The diagnostic feature of *Rimularia* is its distinctive ascus-tip structure although it is most easily recognised microscopically by its richly branched, moniloid paraphyses. The apothecia of many members of the genus are umbonate or gyrose (e.g. *R. badioatra*, *R. mullensis*, *R. sphacelata*) and this can be a useful character for field identification. The only other species in the family *Rimulariaceae* to occur in Britain is *Lithographa tesserata*, which can be distinguished by its sessile, lirella-like apothecia. The genus is characteristically one of upland/montane siliceous rocks although *R. insularis* is lichenicolous (on *Lecanora rupicola*), *R. sphacelata* is bryophilous, and *R. fuscosora* epiphytic (Muhr & Tønsberg 1989).



## Key to the Species

- 1 Discrete, punctiform soredia present. On bark ..... *R. fuscosora*  
 Soredia absent. On rocks, bryophytes or other lichens ..... 2
- 2(1) Thallus C+ red (gyrophoric acid) ..... 3  
 Thallus C- (gyrophoric acid absent) ..... 5
- 3(2) Thallus dark brown-black, granular/scurfy, effuse with a  
 leprose appearance. Usually lichenicolous ..... *R. furvella*  
 Thallus pink-brown, smooth. Directly on rock ..... 4
- 4(3) Thallus with numerous papillae. Usually sterile ..... *R. intercedens*  
 Thallus without papillae. Usually fertile; apothecia innate,  
 contorted/umbonate ..... *R. badioatra*
- 5(2) Thallus K+ red (norstictic acid) ..... 6  
 Thallus K+ yellow or K- (norstictic acid absent) ..... 7
- 6(5) Overgrowing bryophytes on montane rocks. Thallus  
 white, cracked-areolate. Apothecia round (except  
 when distorted by compression) with thick,  
 persistent proper exciple. .... *R. sphacelata*  
 On upland and montane, siliceous rocks and boulders.  
 Thallus dark grey. Apothecia usually contorted,  
 slit-like ..... *R. mullensis*
- 7(6) Lichenicolous lichen on *Lecanora rupicola*; usually  
 maritime ..... *R. insularis*  
 Directly on rocks; upland ..... 8
- 8(7) Thallus K- (stictic acid absent); apothecia 0.5-0.8 mm,  
 sessile; proper exciple thick and cracked,  
 ascospores 18-30 x 10-18  $\mu\text{m}$  ..... *R. limborina*  
 Thallus K+ yellow (stictic acid); apothecia 0.2-0.5 mm  
 proper exciple thin ..... 9
- 9(8) Apothecia innate; ascospores 9-11 x 4.7-7  $\mu\text{m}$ . Thallus  
 pale grey, composed of flat, contiguous areoles ... *R. gyrizans*  
 Apothecia sessile; ascospores 13-14 x 8  $\mu\text{m}$ . Thallus  
 brown-grey, composed of granular areoles on a  
 thin black prothallus ..... *R. sp. 'A'*

### Notes on the upland/montane species

- R. badioatra* - This species was previously placed in *Mosigia* (as *M. illita*) along with the closely related, *R. intercedens*. They are characterised by their pinkish-brown, C+ red thallus and habitat of fine-grained, usually igneous, siliceous rock. Both are frequently found in mosaics but when growing alone *R. badioatra* usually forms small, discrete thalli whereas *R. intercedens* is typically more widespreading.
- R. furvella* - Locally frequent but easily overlooked for a dark stain on siliceous rocks and other lichens. Chemically variable.
- R. gyrizans* - Probably not rare on sunny, siliceous rocks throughout the Scottish Highlands (as well as North Wales) but easily overlooked. See *R. mullensis* below.
- R. intercedens* - See note under *R. badioatra* above. *R. intercedens* is known fertile in the British Isles from only two sites near Loch Hourm in N-W Scotland.
- R. limborina* - An uncommon species of upland/montane siliceous rocks. Easily distinguished in the field by its distinctive gyrose-umbonate apothecia with a thick, cracked exciple.
- R. mullensis* - Closely related to *R. gyrizans* with which it often grows. It differs primarily in the presence of norstictic acid (K+ red, Pd+ yellow) rather than stictic acid (K+ yellow, Pd+ orange) although it can usually be separated in the field by its more slit-like apothecia and darker grey thallus formed of more convex areoles. An illustration of the two species growing side by side is included in Fryday 1997. *R. mullensis* is widely distributed throughout the highlands of Scotland (mostly above c. 500 m) sometimes becoming frequent at high altitudes. There is one record from Dartmoor and the species probably also occurs in the mountains of Northern England and Wales.
- Both species occasionally have small patches of *Orphniospora moriopsis* growing on their thallus, apparently parasitically.

***R. sphacelata*, (Th. Fr.) Hertel & Rambold** - The only member of the genus present in the British Isles to grow over bryophytes in montane situations. It can be separated from other fertile bryophilous species with small simple ascospores by the presence of norstictic acid in the thallus (K<sup>+</sup> red - acicular crystals in microscopic section). Only known in the British Isles from one granite boulder at >1000m on the north ridge of Aonach Mor (West Invernesshire).

***Rimularia* sp. 'A'** - Recently collected from a  $\pm$  vertical, siliceous rock face near Braemar (South Aberdeenshire). This species is close to *R. gyrizans* but has larger ascospores, sessile apothecia, and a much darker thallus composed of warted granules which tend to become almost stipitate.

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Alan Fryday

**SMALL ECOLOGICAL REPORT: A survey to assess the current status of *Anaptychia ciliaris*, *Parmelia acetabulum* and *Caloplaca luteoalba* on wayside trees in lowland Angus**

This survey aimed to trace old records and search for new locations to get an idea of the current status of these species on roadside and trackside trees in lowland Angus.

I began this survey by familiarising myself with the species at the BLS Herbarium in Dundee and noting the sites of previous records from the herbarium and from Ursula Duncan's notebook. To find new locations I examined the "Phase 1" habitat maps of Angus which include details of locations of avenues of roadside trees together with their species composition. To try to maximise the chance of finding the species I made a list of the areas rich in elm, ash or sycamore.

Between February and May 1998 I visited sites in over 88 1km squares and (between the occasional blizzards) I examined almost 1800 trees. Although I learned a great deal about lichen identification and became familiar with many new species, I had mixed success in re-finding the target species. I was unable to re-find *Anaptychia ciliaris*, although I could not visit all of the previous locations. It may be that *Anaptychia ciliaris* now only occurs on a wall substrate and so was overlooked. I had more success with *Caloplaca luteoalba* (a Red Data Book species). Angus still has several areas (notably around the vale of Montrose) where elms are relatively common. In these areas I found *C. luteoalba* quite regularly, on 15 elms and 2 horse chestnut trees. These records represent confirmation of presence in three 10km squares which previously had records and also two new 10km records. These findings indicate that the presence of *C. luteoalba* in Angus will be under threat if elms decline further but there may be some hope if sufficient populations occur on alternative hosts such as horse chestnuts. Further surveys concentrating on horse chestnut trees may reveal additional sites. *Parmelia acetabulum* was found in fewer locations than *C. luteoalba* but it was abundant in one location. In this particular site it occurred on a wide range of trees including a relatively young hawthorn and it was even very common along a moss-covered dry stone wall! Within the rest of the survey I found only two other sites, where the specimens were both small and infertile. This was very puzzling, finding such a rich site early on in the survey and then finding only two other, much poorer sites. In total, *P. acetabulum* was re-recorded from two 10km squares and one new 10km record was found.

Distribution of *Caloplaca luteoalba* and *Parmelia acetabulum* among the host tree species (with % of the total number of each tree species examined).



Tree species	<i>Parmelia acetabulum</i>	<i>Caloplaca luteoalba</i>
Sycamore	8 (1.66%)	
Ash	14 (1.8%)	
Hawthorn	2	
Elm	8 (1.55%)	15 (2.9%)
Horse chestnut		2
<b>Total no. of trees with records</b>	<b>32</b>	<b>17</b>

Overall this survey was partly successful in re-finding previous records and also in producing several new locations. However, although two of the three species were recorded, they are obviously quite rare in Angus and further surveys would be useful to identify new sites.

I would like to thank the BLS for supporting this survey, and Richard Brinklow for access to the BLS Herbarium. Dr Brian Coppins provided great help with the origin of the study and in verifying specimens. I would also like to thank Bertram and Lisa Rigby for help with transport.

Jonathan Winn

[Members wishing to read the full, eight-page report should apply to the author at 20 Nevilledale Terrace, Durham City, Co. Durham, DH1 4QG.]

### BRITISH ISLES LIST OF LICHENS

The list of lichens on the BLS website has undergone a major revision. The list of 2087 species now includes lichenicolous fungi as well as non-lichenised fungi. It is available as a CSV file for import into a database with BLS number, full name and abbreviated name, and as text with BLS number and full name for easy reference. Accepted revisions to this list will be published annually in the winter *Bulletin*.

J M Gray

## CZECH LICHENOLOGY IN 1998

Elections of a new executive council of the Bryological and Lichenological Section of the Czech Botanical Society were organised during January and the section officers for the next five year period are: J Liška (chairperson), Eva Lisická (vice-chairperson), and Z Soldán (secretary). The number of members increased to 85 persons (Dec 1, 1998).

Both regular field meetings were organised in territory of Moravia: spring meeting in northwest Moravia (Javorníky Mts, 20 participants) and autumnal 11th Bryological and Lichenological Days were held near Náměšť n Osl (central Moravia, 33 participants). Several one-day excursions for students were also undertaken.

In the newsletter *Bryonora* 21 there is an article by Z Palice on the identity of several revised specimens (especially from the Šumava Mts) in the herbarium PRC and collected by M Servít, referring to the latter's papers (Servít 1910,1911). A contribution to lichen flora of the Polana Mts (central Slovakia) by R Dětinský, Š Bayerová and J Halda is also published there. *Bryonora* 22 includes short articles on *Porina lectissima* and *P. leptalea*, new species to the Slovak lichen flora, by E Lisická, and a contribution to the lichen flora of the Moravská Třebová area by M Michálek and I Pišút. Additions to the Czech and Slovak lichenological bibliography are also included.

In 1998 Renata Pohlová graduated at Charles University, Prague (thesis on the ecology of *Ceratodon purpureus*, *Peltigera didactyla* and *Cladonia* spp. in a very disturbed habitat).

Jiří Liška and Zdeněk Černohorský

## WILDLIFE LAW

Plantlife (the wild plant conservation charity) has been campaigning for reform of the 1981 Wildlife and Countryside Act with many other conservation bodies. It has now written to the Society asking if members would write to the Prime Minister and Deputy Prime Minister urging them to include a Wildlife Bill in the 1999 Queen's Speech, this would mark the 50th anniversary of the 1949 National Parks and Access to the Countryside Act and would provide the legislation to strengthen the protection given in the 1981 Wildlife & Access to the Countryside Act.

Tony Fletcher

## PLANTLIFE HONOURS DR FRANCIS ROSE

Honorary Member, Dr Francis Rose, received Plantlife's highest accolade in December when he was presented with an award for his outstanding contribution to plant conservation.

The award, an original hand coloured print from Sowerby's English Botany (nineteenth century) of bog pimpernel *Anagallis tenella*, was presented by Mrs Lynda Hamilton, the widow of the late Geoff Hamilton, at Plantlife's annual meeting of supporter members.



Mrs Lynda Hamilton (right) presenting Dr Francis Rose (left) the award for his outstanding contribution to plant conservation at Plantlife's Annual Meeting of Supporter Members.

## LICHENS IN QUITO

Last November, I led a natural history holiday to Ecuador, and we spent a day or two in the capital Quito. Our hotel had extensive grounds with a number of small but mature trees. Most were Jacarandas, and I was totally astonished at the richness of the lichen flora on the branches. Although many were species quite alien to me, it was apparent that there was a richness of species belonging to *Teloschistes*, *Lobaria*, *Sticta*, *Heterodermia* and *Leptogium*. One species I had no trouble in identifying which was present on several branches was *Pseudocyphellaria aurata*. All these genera are noted for their extreme intolerance of sulphur dioxide pollution, and yet here they were growing luxuriantly within the conurbation of a capital city. Quito is not particularly noted for its clean air; the streets are busy, and the suburbs are certainly not without industry.

It is known that highly sensitive species such as *Teloschistes chrysophthalmus* will grow quite close to large urban areas in the Mediterranean. It has always been assumed that they tolerate higher levels of industrial pollution owing to the low rainfall in the area. However, Quito has a high rainfall, and for several months of the year has regular afternoon rain during its rainy season. It also lies in a valley in the high Andes where there are frequent days when dense, wetting fog lies trapped for long periods. The reason these sulphur dioxide intolerant species can survive in an urban environment which has a high humidity seems a considerable mystery. Not only did the lichens survive, they showed no signs of any morbidity and were frequently exceptionally fertile. In fact, the state of the flora was that expected in the cleanest parts of north western Scotland.

The hotel I stayed in was towards the edge of town. I did notice that in the centre of town, in the city parks, trees did not support a rich flora, and a plant which closely resembled *Lecanora conizaeoides* was in evidence.

The following is a list of those species which closely resembled those I saw. However, as they were from Ecuador, there is a high chance that they were only close relatives of the species listed:

<i>Caloplaca cerina</i>	<i>Parmelia saxatilis</i>
<i>Heterodermia leucomelos</i>	<i>Parmelia subrudecta</i>
<i>Heterodermia obscurata</i>	<i>Pseudocyphellaria aurata</i>
<i>Leptogium hildenbrandii</i>	<i>Ramalina canariensis</i>
<i>Lobaria</i> sp.	<i>Ramalina fraxinea</i>
<i>Normandina pulchella</i>	<i>Sticta fuliginosa</i>
<i>Pannaria conoplea</i>	<i>Teloschistes chrysophthalmus</i>
<i>Parmelia perlata</i>	<i>Xanthoria candelaria</i>
<i>Parmelia reticulata</i>	

Simon Davey



## CHANGES IN THE LICHEN FLORA ON A MARITIME BIRD-TABLE IN WEST WALES FROM 1983 TO 1999

In 1983 a bird table with a varnished plywood ridged roof was erected in Arthur Chater's garden, a maritime site within view of the sea at Aberystwyth, west Wales. By 1994 the roof of this bird table had gained a considerable lichen flora dominated by foliose species, as recorded by Ray Woods (Table 1). A photo of the west-facing aspect (figure 1) shows c.25% *Xanthoria parietina* (x), c.25% *Parmelia* species and c.50% Physciaceae typical of a maritime nutrient-enriched site. Crusts of mainly *Lecanora* species were restricted to the margins of both sides but were more conspicuous on the east side.

By September 1998, when I saw the bird table, the foliose community had changed dramatically on both faces, but the crusts could still be distinguished in the same situations (Table 1). *Physcia aipolia*, *P. adscendens*, *Parmelia caperata* and *Evernia prunastri* had gone completely from both surfaces and only a few fragments of *Xanthoria* remained, none of them fertile. Recent arrivals included *Parmelia subrudecta*, and a mass of *Scoliciosporum umbrinum* with *Buellia punctata* which seemed to form a fertile substrate for *Physcia tenella* propagules to grow in, especially on the east facing slope. *Parmelia glabratula* had also appeared on this side. Individuals of species that had been there in 1984 such as *Parmelia saxatilis* (s), *P. exasperata* (fertile) and *Physconia distorta* (d fertile) had grown and also lost parts of thalli, but had not colonised new areas, whereas there were many new individuals of the sorediate species, *Parmelia sulcata*, *P. subrudecta* and *Physcia tenella*. The rate at which these species grow and colonise new areas was apparent when I revisited the site in March 1999. Whereas a thallus of *P. saxatilis* (s) had grown 100% in four years, *P. sulcata* (p) and *P. subrudecta* (r) had grown 50% in six months. In addition large areas of *Physcia tenella* had been lost, but a mass of small individuals of all three species was growing over areas where thalli had been lost. Fertile species were either mature (*Parmelia exasperata*), moribund (*Physconia distorta*) or lost (*Physcia aipolia*, *Xanthoria parietina*). In March the pH of the substrate was 5.6, indicating that the substrate may be too nutrient-enriched for spores of these species to colonise.

Table 1 of Lichen species on bird table in west Wales.

	Ja n E	1994 W	Sep t E	1998 W
<i>Buellia punctata</i>	-	-	-	+
<i>Evernia prunastri</i>	+	+	-	-
<i>Hypogymnia physodes</i>	+	+	+	+
<i>Hypogymnia tubulosa</i>	+	+	-	+
<i>Lecanora aitema</i>	+	+	+	+
<i>Lecanora chlarotera</i> agg.	+	+	+	+
<i>Lecanora expallens</i>	+	+	+	+
<i>Lecidella elaeochroma</i>	+	-	+	+
<i>Parmelia caperata</i>	+	-	-	-
<i>Parmelia exasperata</i>	-	+	+	+
<i>Parmelia glabratula</i>	-	-	+	-
<i>Parmelia saxatilis</i>	-	+	-	+
<i>Parmelia subrudecta</i>	-	-	+	+
<i>Parmelia sulcata</i>	+	+	+	+
<i>Physcia adscendens</i>	+	+	-	-
<i>Physcia aipolia</i>	+	+	-	-
<i>Physcia caesia</i>	+	+	+	+
<i>Physcia tenella</i>	+	+	+	+
<i>Physconia distorta</i>	-	+	+	+
<i>Ramalina farinacea</i>	+	+	-	+
<i>Ramalina fastigiata</i>	-	+	+	+
<i>Scoliciosporum umbrinum</i>	-	-	+	+
<i>Xanthoria parietina</i>	+	+	+	+

Local conditions on these surfaces have changed considerably since 1983 due to the breakdown of the plywood surface, and to the continued accumulation of nutrients from bird droppings which is probably more extreme during the winter period. In addition there appears to be some disturbance of foliose species from birds landing and taking off. The more usual succession on a well-lit and moist wooden surface was illustrated by the lichen community on an adjacent teak bench where in 1994 12 species of lichen were recorded, with acidophilous species of the *Parmelietum furfuraceae* (James *et al* 1977) dominating, and which, by 1998, had gained a further six species including *Parmelia caperata*, *P. revoluta*, one thallus of *Xanthoria parietina* and a small one of *Usnea*.

The loss in diversity on the bird table illustrates a trend in eutrophication already described by Benfield in Devon (1994, 1998), and the success of *Physcia tenella*, correlates with its high ammonia tolerance shown by van Herk in Holland (1999). Both *Xanthoria parietina* and *Physcia caesia* have a lower tolerance of ammonia, although it would appear in this situation that *Parmelia sulcata* and *P. subrudecta* colonise and grow rapidly on the nutrient-enriched surface. In this very local situation on a bird table we have a good example of the transition from an acidophilous community of species of *Parmelia*, *Evernia* and *Hypogymnia* (post 1983) to the nutrient-enriched *Xanthorion* with a high diversity of species (1994) to a highly eutrophicated and species-poor community dominated by *Physcia tenella* (1998).

Pat Wolseley

References:

- Benfield, B (1994) Impact of agriculture on epiphytic lichens at Plymtree, East Devon. *Lichenologist* 1: 91-94.
- Benfield, B (1998) Further lichen observations at Plymtree, Devon, 1992-1997. *British Lichen Society Bulletin* 83: 16-18.
- van Herk, C M (1999) Mapping of ammonia pollution with epiphytic lichens in the Netherlands. *Lichenologist* 31: 9-20.
- James, P W, Hawksworth, D L and Rose, F (1977) Lichen communities in the British Isles: a preliminary conspectus. In *Lichen Ecology* Seaward, M R D, ed. Academic Press, London.

Figure 1

West-facing aspect of the bird table in January 1994 showing abundance of *Xanthoria parietina* (x), one thallus of *Parmelia saxatilis* (s). Larger foliose individuals are *P. sulcata*. (Photo by Arthur Chater.)

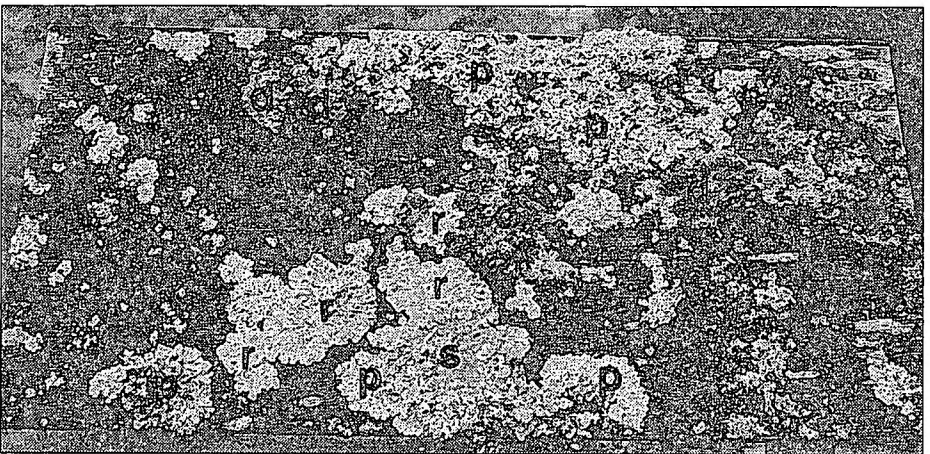
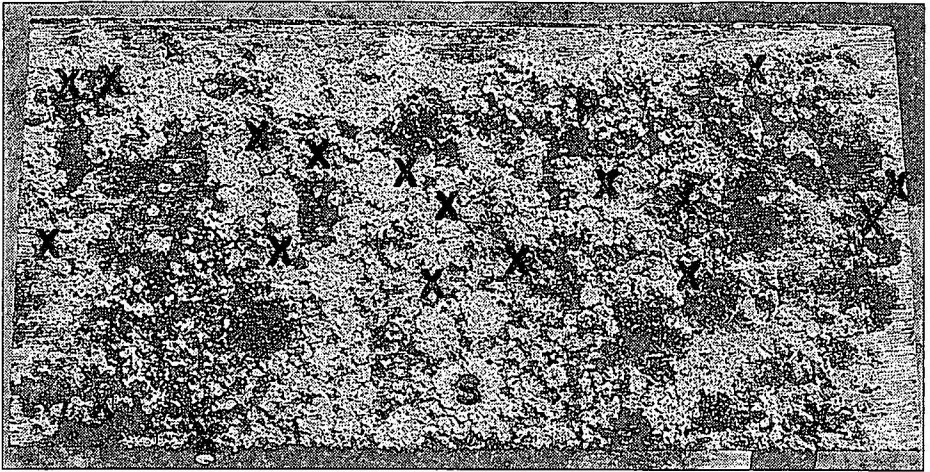


Figure 2

West-facing aspect in March 1999 showing slow growth of *Parmelia saxatilis* (s), new species *P. subrudecta* (r), rapid colonisation of *P. sulcata* (p) following loss of mature individuals, and moribund *Physconia distorta* (d).

## CHURCHYARD PROJECT NEWS

Since the Churchyard Survey progress map was published in the last *Bulletin* yet more dots have been added and every 10k square in lowland Britain will have almost certainly been visited at least once before the end of the year. May I again make a plea that all existing records and surveys are made known to me. I am gradually building up a summary list for every vice-county, both lowland and upland, on an *Excel* spreadsheet. The example below for North Essex (VC19) shows the form it takes:

LOCATIO N	GRIF REF	RECORDER S	DATE S	S T	G T	ASS	O F	NOTES
Abberton	52/99719 3	JFS/JFS,TP	1983/9 5	4 1	46		1	
Alresford	62/06420 6	JFS,PM-EB	1994	4 5	56		1	<i>B. calligans</i> 11 lig sp
Berechurch	52/99321 8	FR et al	1973		23		1	
Black Notley	52/76220 7	JFS,IGP,TWC	1997	6 4	71	*	1	7 lig sp

The sites are listed in alphabetical order of place (not saint's name!). **ST** is the saxicolous total and **GT** the grand total. The more notable sites are currently given a star rating in the **ASS** column, while 'p' indicates a partial survey. '1' or '0', as appropriate, in the **OF** column indicates whether the list is on file or not and, by this means, the computer can provide me with the current total. The notes are more extensive than shown above and include species worthy of note, references and so forth. The next *Bulletin* marks the tenth anniversary of the project and I would like to include some fully updated facts and figures relating to both sites and species.

The recording of churchyard lichens by means of a mapping card and a standardised system is now well established and, once this information has been entered on to the new BLS database (no mean task!), I would hope that the emphasis will gradually switch to looking more closely at the make-up of communities within individual sites and carrying out more ecological research. May I, at this juncture, also entreat churchyard workers to use the accepted form of recording. Some contributors have their own idiosyncratic methods and, whereas I am loath to impose a straightjacket, some degree of standardisation does facilitate the entry of records on to the database.



I hope that increasingly in the future we will be able to encourage sixth formers and university students to carry out some of this research for us and to give them the necessary guidance. In the last *Bulletin*, I referred to some ongoing work being carried out by the sixth form at St Edmund's College in Hertfordshire. John Kirton, the teacher involved, has now written up the project and we are seeking to have it published in an appropriate educational journal.

To help students and others with identification, the three very successful identification leaflets are being revised and two more produced. Each leaflet contains twelve colour illustrations on one side, and identification and general notes on the other. The original three leaflets illustrate the following species:

**Leaflet 1:** *Caloplaca aurantia*, *C. flavescens*, *C. teicholyta*, *Diploicia canescens*, *Lecanora campestris*, *Phaeophyscia orbicularis*, *Physcia adscendens*, *P. caesia*, *Physconia grisea*, *Tephromela atra*, *Xanthoria calcicola*, *X. parietina*.

**Leaflet 2:** *Aspicilia calcarea*, *A. contorta*, *Caloplaca saxicola*, *Candelariella medians*, *Diplotomma albostratum*, *Lecidella scabra*, *Placynthium nigrum*, *Psilolechia lucida*, *Toninia aromatica*, *Verrucaria baldensis*, *V. hochstetteri*, *V. nigrescens*.

**Leaflet 3:** *Caloplaca citrina*, *C. holocarpa*, *Candelariella aurella*, *C. vitellina*, *Lecanora albescens*, *L. conizaeoides*, *L. dispersa* agg., *L. muralis*, *Lecidea fuscoatra*, *Protoblastenia rupestris*, *Rinodina gennarii*, *Trapelia coarctata*.

Leaflet 4 will probably comprise the following acidophilous lichens:

*Acarospora fuscata*, *Buellia aethalea*, *Lecanora polytropia*, *L. soralifera*, *Ochrolechia parella*, *Parmelia glabratula* subsp. *fuliginosa*, *P. mougeotii*, *P. saxatilis*, *P. sulcata*, *Porpidia tuberculosa*, *Rhizocarpon reductum*, *Trapelia placodioides*.

The final leaflet will inevitably be something of a mixed bag but will include a number of species characteristic of north-facing walls, together with the commonest representative examples of leprose lirellate, gelatinous and cup lichens:

*Bacidia sabuletorum*, *Cladonia chlorophaea*, *Collema crispum*, *Diploschistes scruposus*, *Dirina massiliensis* f. *sorediata*, *Lecania erysibe*, *Lepraria incana*, *Leproloma vouauxii*, *Lecidella stigmatea*, *Opegrapha calcarea*, *Sarcogyne regularis*, *Verrucaria glaucina*.

By the time you read this, the leaflets should be available and are to be sold as a set of five for approximately £2.50 per set. If you require any before the winter *Bulletin*, please ring me for details (01280-702918).

In an attempt to increase awareness of lichens among those involved in the care and upkeep of churches and churchyards, the Churchyards Committee is planning during the year to send out a package to all the 43 Church of England dioceses of England and subsequently to similar bodies in Scotland, Wales and Ireland. The package will include a list of prime sites within each diocese and the name and address of a local BLS representative who will act as a link person with our committee. A list of volunteers was put out at the AGM and, as a result, there are now just five gaps to be filled, these being Blackburn, Liverpool and Newcastle, and due to the untimely death of Brian Fox, Chester and Manchester. If you are willing to help or would like further details, please let me know.

The third edition of **Stone Chat** was sent out to 53 members at the end of February. This newsletter is available free of charge to all who, in some way or other, are actively involved in the study of churchyard lichens. The next edition should be available by the end of August and any contributions, however small, will be welcome by the beginning of that month. The next *Focus* is likely to be on *Rinodina* or *Leptogium* and any relevant information will be most gratefully received.

Finally, may I draw your attention to the **ChyLIG** programme in the accompanying Field Meetings leaflet. As was explained in the last *Bulletin*, this group arose from my weekend Knuston course and provides an opportunity for relative beginners and more experienced members to meet together and learn from one another. Unfortunately, the programme began rather falteringly this Sunday (21 March). Due to unforeseen circumstances, the meeting held at the headquarters of the Northampton Natural History Society had almost to be cancelled and, in the event, only four of us were present. This was a shame because John Smeathers of NHSS who organised the meeting had put in a good deal of work preparing microscopes and providing refreshments. I hope that, if you asked to be on the mailing list, you will endeavour to support the outdoor meetings and also the final indoor meeting in November when there will, again, be an opportunity both to examine specimens and use microscopes in this splendid meeting room, and to visit a nearby urban site. We do, incidentally, make a contribution to NHSS for the use of this room and, consequently, the meeting will be cancelled unless we are sure of a reasonable turn-out. It is **essential** that, if you are planning to come to a meeting, you contact either Claire Leather or myself near to the time to check on the final arrangements. If we do not hear from you, we will assume that you are not attending.

Tom Chester

## PORTRAIT OF A COUNTY: 4. CARDIGANSHIRE VC46

Cardiganshire must be one of the least known counties in Wales and perhaps most people from outside the principality would not be able to readily locate it on a map. It occupies the southern sweep of Cardigan Bay from the Dyfi estuary in the north to the River Teifi at Cardigan in the south, rising inland to Plynlimon which, at 752m, is the highest point in mid-Wales.

Since 1960, about 770 lichens and lichenicolous fungi have been recorded, putting it in third place for species diversity in the Welsh arena, exceeded only by VC49 Caerns.(878) and VC48 Mers.(776). With c.43 species of lichenicolous fungi, Cardiganshire currently has more than any other Welsh VC, but this merely reflects recent recording effort - Woods & Orange (1999) Census Catalogue of Welsh Lichens (in press). Some 38% of the total has been added over the last ten years and the 800 barrier looks likely to be broken soon. Recording, with a distant view to one day producing a county lichen flora, has been proceeding through the 1990s. Fieldwork is site orientated with mapping done on a tetrad basis - how realistic this is, given the scarce resource lichenologists are in the county, remains to be seen.

The relatively unpolluted air of west Wales does not mean that lichens of 'old-woodland' are easy to find, indeed quite the opposite, as there are few good sites now supporting *Lobarion* species. Past woodland exploitation has seemingly affected epiphytic lichens far more than air pollution ever did and almost all the sessile oak woods not protected by extreme topography have been coppiced in the past. George Cumberland writing in 1796 ('An Attempt to Describe Hafod') comments on 'it having been the custom of this country, for many years back, to mow their woods as it were, at stated periods'. One fabulous exception is a small area of ash wood, south of Glaswell at the east end of the Llyfnant valley, where it is easy to drift off and imagine one has been teleported to western Scotland. *Lobaria pulmonaria* is in abundance, actively colonising young hazel twigs by the stream on which plants only a few centimetres across are fertile. A few scraps of *L. scrobiculata* still cling on to life. The Llyfnant is one of a fine series of parallel ravine woodlands, including Cwm Clettwr, Cwm Einion (Artist's Valley) and the Cwmerau, running perpendicularly off the south side of the Dyfi that phytogeographically have closer affinities with Merionethshire. Between them they are home to some of the county's top lichens such as *Arthonia endlicheri*, *A. atlantica*, *Arthothelium ruanum*, *Blarneya hibernica*, *Degelia plumbea*, *Lichenodium sirosiphoideum*, *Menegazzia terebrata*, *Micarea pycnidiophora*, *Ochrolechia inversa*, *Parmelia endochlora*, *P. robusta*, *Sticta canariensis* and *Strangospora microhaema*.

As with most biological recording in the county, there is a strong northern bias and many woods in the south have never been properly scrutinised. This is particularly true of the valley-side woods around Newcastle Emlyn east of Cardigan and the coastal dingles in the Llanarth-Aberaeron area. One southern site well surveyed is the Coedmor NNR outside Cardigan where Alan Orange discovered *Porina guaranitica*. Cwm Wyre, to the east of Llanrhystud, has been only partly explored and much of it has been sadly trashed by conifers but recent searches of surviving broadleaved fragments have revealed *Peltigera collina*, *Biatoridium (Strangospora) delitescens* and plentiful *Sticta* spp. The Gwenffrwd near Penuwch is an extensive wooded valley visited on only a few occasions so far - it would certainly repay more attention. Notable species include *Pyrenula laevigata*, *Nephroma parile*, *Graphina ruiziana*, *Sticta fuliginosa*, *Parmeliella parvula*, *Phaeographis inusta* and *Lecania chlorotiza*. This last species appears to be widespread in good woodlands in the county. Though west Wales is not well off for parkland landscapes, rich sites exist at Parc Nanteos, Old Cilgwyn and Parc Pont-faen. Quasi-parkland areas also occur in conjunction with old woodland at some of the now defunct estates of historic Cardiganshire families like at Trawscoed and Hafod. Hafod is still an exciting place to explore considering the terrible damage wrought by forestry this century. Some species have managed to stage something of a comeback on sheltered young trees in the abandoned walled gardens by the river Ystwyth where *Sticta limbata* produces lobes 4cm across. *Lobaria scrobiculata* barely survives on three trees at the east end of the Johnesian estate near Ponrhydygroes. The Ystwyth corridor downstream to Llanilar is a good hunting ground for epiphytes as ancient trees perch along the riverbanks and there is a soft, if wet, landing for those tempted up into the canopy boughs. Some of Cardiganshire's strangest woods are the windblown hanging oakwoods on the sea-cliffs between Morfa Bychan and Llanrhystud. The Penderi wood has *Parmelia crinita* and this also occurs on coastal rock faces above Cwmytydu near Newquay. Patches of ancient woodland on the sea-cliffs around the M.O.D. missile base at RAE, Aberporth deserve detailed survey but access is a problem. *Sorbus torminalis* and *Populus tremula* occur on the cliffs there. Surprising maybe to those who equate Wales with overwhelming wetness is the presence of *Parmelia quercina* and *P. soredians*, two strongly southern lichens, that turn up occasionally on trees in the narrow sunny strip on the coast either side of Aberystwyth.

Coastal lichenology is a vast and so far little explored territory. There are mile after mile of high cliffs that in an ideal world would attract sufficient funding to employ a team of surveyors for three years, complete with dinghy for accessing inaccessible coves. The harder Ordovician rocks along the south part of the coast are richer in species than the more friable Silurian strata. Cationic inputs from sea spray counteract the monotonous acidity of the shales providing niches for species like *Dermatocarpon minutum* (Penderi and Llangranog), *Collema tenax* and *Toninia aromatica*. Wave-cut

platforms of dipping knife-edged shales provide damp crevices for *Fuscopannaria leucophaea* and *Solenopsora holophaea*. *Bacidia scopulicola* and *Diplotomma chlorophaeum* are ubiquitous on damp faces all along the coast. The spectacular headland at Ynys-Lochtyrn (GR22/31.55.) is a must for coastal visitors. Massive intrusions of hard white quartz locking the shales together are painted orange with *Xanthoria* and sheets of fertile *Caloplaca verruculifera*. There are few directly south-facing stretches of coastline but it is worth seeking them out as they support radically different lichen communities. *Acarospora impressula*, *Aspicilia leproscens*, *Buellia subdisciformis*, *Schaereria fuscocinerea*, *Rinodina atrocinerea*, *Polysporina lapponica* and *Rhizocarpon viridiatrum* can sometimes be found in these places. Foelymwnt (National Trust) near Cardigan is a real gem and with a full range of aspects comes highly recommended, especially on a sunny day, for the family lichenologist wanting a day at the seaside. Sand blows up from the beach to form a miniature dune system atop a boulder clay cliff and thin soils on the steep south-facing slope above the beach support a distinctly calcicole assemblage with *Cladonia foliacea*, *C. firma*, *C. pocillum*, *Chromatochlamys muscorum*, *Leptogium tenuissimum*, *L. corniculatum*, *L. britannicum*, *Polyblastia* aff. *gelatinosa* (perithecia c.0.5-0.75mm diam.), *Moelleropsis nebulosa*, *Toninia sedifolia*, *Rinodina conradii*, *Catapyrenium cinereum*, *C. squamulosum* and *Caloplaca cerina*. The rare *Gyalecta foveolaris* has been recorded on the north side of the mount.

A possibly under-studied habitat, but one full of pleasant surprises, is the metre-wide strip of 'bare' soil on cliff edges in many places on the coast, kept open by exposure and erosion. This is the realm of lichens not averse to a bit of hardship and comprises a contingent of ruderal terricolous species with *Peltigera didactyla*, *Agonimia tristicula*, *Polyblastia agraria*, *Arthonia ligniaria*, *A. ligniariella*, *Pyrenocollema* cf. *argilospilum*, *Vezdaea leprosa*, *Leptogium tenuissimum*, *Rinodina conradii*, *Thelocarpon laureri* and a 'morph' of *Lecanora dispersa* s.l. on decaying plant matter etc. with thin and warped discs that is probably a distinct species.

Inland the surface of the uplands has also been barely scratched. Plynlimon, much maligned by higher plant botanists, is a far more lichen-friendly place. A clutch of county-notables from a two day expedition in 1997 included *Pilophorus strumaticus* (superabundant and hosting *Dactylospora purpurascens*), *Rimularia limborina*, *Lithographa tesserata*, *Rhizocarpon 'colludens'* sensu Fryday, *Amygdalaria consentiens* and *A. pelobotryon*. Tiny seepages with a sniff of base-enrichment are rare but have *Polyblastia cupularis*, *P. cruenta*, *Verrucaria latebrosa*, *Gyalecta jenensis* and *Thelidium zwackhii*. There is no shortage of outcrops still awaiting attention above Llyn Lygad Rheidol and north-east of the summit to the VC47 Monts. border. Away from the rocks, sheep have devoured the montane heath and *Cetraria islandica* can only now be found as a few large tufts inside a fenced-off mine shaft above the mine



on the south side of the mountain where it seems happy. It would surely be all over Plynlimon today were it not for the legions of hooped locusts. The remote uplands, much of them over 450m, south of Cwmystwyth to the Twyi forest and over to the Brecon and Radnor border, have hardly been touched but are not the most attractive stomping ground for lichenologists. *Trapeliopsis glaucolepidea* was found above Cwmystwyth in 1996 and is probably all over the moorland on suitable eroding peat. Recording this *Molinia*-dominated terrain on a tetrad basis for a county flora will take great fortitude and a lot of time. Any volunteers?!

No whistle-stop tour of Cardiganshire lichens would be complete without mention of abandoned metal-mines, of which there are at least 200 depending on where boundaries are drawn between them. Many of the best are now under considerable threat from reclamation schemes. Their terricolous flora can be outstanding, supporting all the British *Vezdaeās* except *V. stipitata*, the newly described *Coppinsia minutissima*, *Gyalidea subscutellaris*, *Sarcosagium campestre*, *Steinia geophana*, *Absoconditella trivialis*, *Arthrorhaphis muddii*, *Epilichen scabrosus*, *Belonia incarnata*, *Epigloea soleiformis*, *E. medioincrassata*, *E. filifera* (metal-polluted river shingle downstream of Grogwynion mine), *Placynthiella hyporhoda*, pycnidiate *Micarea cinerea*, *Polyblastia agraria*, *Stereocaulon condensatum* and *S. glareosum*. January-March is the best time to seek them out. What I think is the most remarkable feature of these old mines, however, is the presence of so many 'invisible' living things on sites that visually convey toxicity, industrial dereliction and the illusion of sterility. In a way they pose the ultimate challenge for conservationists and illustrate what biodiversity is all about.

Steve Chambers

## EVALUATION OF LICHEN INTEREST ON MINERALOGICAL SITES IN BRITAIN

Knowledge gained from surveys of disused metal mines over the last ten years or so (e.g. James & Woods 1988, Purvis 1988, Fryday 1989; Martin, Chambers, Reed & Williams 1994, Chambers & Williams 1995) on the metallophyte lichen interest of mineralogical sites in Wales has been used to develop a prototype evaluation system for assessing the relative importance of the sites for which we have good data. So far this has only been applied to a proportion of the Welsh mines (mainly VCs 43, 44, 46, & 47) and there is an obvious need to develop and extend it to other sites in Wales and those elsewhere in Britain. Information does, of course, exist for mine sites surveyed outside of Wales and certain sites have been examined in considerable detail, e.g. Coniston copper mines (Purvis & James 1985, *Lichenologist* 17). Giavarini 1990 (*Lichenologist* 22(4)) provides much information on the Dartmoor mines in Devon. However, no attempt has yet been made to draw all these surveys together for a comprehensive evaluation of British metal-rich sites. Sites looked at in the Gwydyr forest near Betws-y-coed have not yet been incorporated into the Welsh assessments. Some of them are as rich as sites in mid-Wales.

### Uses of Such a System

An evaluation system is vital if we are to be able to summarise our current knowledge meaningfully and scientifically when it comes to deciding which mines are worthy of protection. It will distil hard facts and put arguments for the conservation of the best sites on a firmer footing. Internationally, Britain seems an important place for lichen communities associated with metal mines and, as with our oceanic woodlands, there is a particular responsibility to care for them. CCW in mid-Wales has already employed the system on a practical basis to identify the richest sites and some of these have since received statutory SSSI notification and hence at least some protection. Bitter experience of 'reclamation' schemes in recent years has proved that even top-ten sites are vulnerable to major damage and schemes on sites lacking formal protection have, without exception, been disastrous. More and more of the best mines are being put forward for restorative works. In the past, the lead role in the formulation of reclamation plans has been taken by district councils and the Welsh Development Agency but the current tranche, most pending, have been Environment Agency-led and are concerned primarily with the alleviation of water pollution impacts.

### Approach

The approach employs a simple additive scoring system based on approximately 65 indicator species from three categories. These are: (i) strict/obligate (as far as we can ascertain) metallophytes (c.20 spp.); (ii) facultative metallophytes (c.30 spp.); and, lastly, (iii) 'rare species' - nationally rare or scarce or otherwise notable lichens, etc., associated with the sites but not dependent on metal-rich conditions etc (c.15 spp.). The species are

not listed here as some are currently being reappraised. It is very difficult to know absolutely why certain lichens occur preferentially on mines, at least in Wales, and their tolerance, if any, to toxic heavy metals. Some, e.g. *Stereocaulon glareosum*, probably just find the open, gravelly-heathy conditions to their liking but it is thought that residual metals are important in maintaining the openness of the habitat by inhibiting higher plant colonisation, - a sort of ecological rather than physiological dependence. The species presently listed in each category seem to work well in the Welsh context but will need additions and refinements to incorporate important taxa not yet, or only recently, found in Wales, e.g. *Lecidea inops*, *L. silacea* and *Miriquidica atrofulva*. There may eventually be a case for producing regional evaluation systems, possibly for distinct ore-field districts (a mineralogical natural areas concept), along the lines of the NIEC, ESIEC and WSIEC woodland systems. A catalogue could be produced listing sites according local, regional and national status.

Of the sites well known in mid-Wales, some 50 have a significant (>5) metallophyte interest. Twelve of the top thirty sites (40%) have reclamation schemes hanging over them. Sites at the top of the table with c.20 or more indicators, of which there are c.13 in Ceredigion (one destroyed last year), are of sufficient quality to merit consideration for SSSI status. Cwmystwyth heads the list presently with 39.

To make it a practical tool the scope of the evaluation will be limited to abandoned mines and trials, old mineral workings, processing structures sometimes remote from their feeder mines, and heavy metal-contaminated river shingle environments, naturally so or polluted by mining activities. More restricted metallophyte communities in the plethora of other metal-affected situations, e.g ground beneath pylons and roadside crash-barriers, Cu micro-habitats in churchyards, will not be included unless they are especially species-rich and extensive. It would still be important to amass information on such sites however.

In order to make the system work we need to begin collating data. Members are invited to help by :-

-Sending in recording cards or lists, no matter how brief, of species from mine sites visited, etc., in their areas, including duplicates of any old cards that have already been sent to the mapping recorder. Lists from Scottish and north of England sites would be especially welcome.

-Taking the plunge to *bona fide* metallophilic status by getting out to local mines (you would be amazed just how numerous they are) to prospect the lichen flora. Referees do exist in the Society for checking material from metal-rich places so don't be afraid to use them. We would also be happy to look at specimens.

Steve Chambers & Ray Woods

## LITERATURE PERTAINING TO BRITISH LICHENS - 25

*Lichenologist* 30(4 & 5) was published on 25 September 1998, 30(6) on 27 November 1998, and 31(1) on 4 February 1999.

Taxa prefixed by \* are additions to the checklists of lichens and lichenicolous fungi for Britain and Ireland. Aside comments in square brackets are mine.

**NB.** Authors of articles on British and Irish lichens, especially those including records and ecological observations, are requested to send or lend me a copy so that it can be listed here. This is particularly important for articles in local journals and newsletters, and magazines.

BEAVIS, I 1998. In "Reports of outdoor meetings 1997". *Bull. Kent Field Club* 43: 12-37: Hargate Forest (pp 19-20).

BELL, S & JACKSON, A 1998. Discovering the signs of clean air. *Kew* [Autumn issue]: 40-43. Popular article on lichens with colour photographs, including an account of the lichens at the gardens and grounds at the Royal Botanic Gardens at Kew and Wakehurst.

DOBSON, F S 1998. London's lichens are making a welcome return. *Wild London* Autumn/Winter 1998: 12-13. Illustrated popular article on the improving lichen flora of London.

DOBSON, F S & BUCKLE, P 1996. The lichens of St Paul's churchyard, Chipperfield, and surrounding area. *Trans. Hertfordshire Nat. Hist Soc.* 32: 435-437. Compares results of a visit to Chipperfield in 1995, with previous records published in 1919 by R Paulson and 1951 by P H Gregory.

HAFELLNER, J 1998. Studien an lichenicolen Pilzen und Flechten X. *Arthophacopsis*. Eine neue Gattung lichenicoler ascomyceten (Arthoniales). *Cryptogamie, Bryol.-Lichénol.* 19: 155-168. Includes a key to all lichenicolous fungi reported from *Parmelia* s. str., and the description of the new genus and species *Arthophacopsis parmeliarum* [reported from Scotland in this *Bulletin*].

HAFELLNER, J 1998. Studien an lichenicolen Pilzen und Flechten IX. Was ist *Abrothallus friesii* Hepp? *Herzogia* 13: 139-144. Includes a synoptic table to all described lichenicolous species of *Taeniolella*.

KOCOURKOVÁ-HORÁKOVÁ, J 1998. Distribution and ecology of the genus *Thelocarpon* (Lecanorales, Thelocarpaceae) in the Czech Republic. *Czech Mycology* 50: 271–302. Includes some excellent colour photomicrographs of several species, and a detailed description of pycnidia from three species.

KUYPER, T W 1995. *Phytoconis*. In BAS, C, KUYPER, T W, NOORDELOOS, M E, VELLINGA, E C *Flora Agaricina Neerlandica* Vol. 3B: 89–92. Rotterdam: A A Balkema. The lichenized species of *Omphalina* s. lat. occurring in the Netherlands are treated in *Phytoconis* Bory (1797), viz.: *P. ericetorum* (Pers.:Fr.) Redhead & Kuyper (1988) (*O. ericetorum*); *P. velutina* (Quél.) Redhead & Kuyper (1988) (*O. velutina*); and *P. viridis* (Ach.) Redhead & Kuyper (1988) (*O. hudsoniana*). [The taxonomy and nomenclature of this group is still unsettled, and it may be best to stick, for the time being, to *Omphalina* for general recording purposes.]

MARTÍNEZ, I & BURGAZ, A R 1998. Revision of the genus *Solorina* (Lichenes) in Europe based on spore size variation. *Ann. Bot. Fennici* 35: 137–142. *Solorina bispora* var. *macrospora* is treated as a subspecies, *S. bispora* subsp. *macrospora* (Harm.) Burgaz & Martínez, and the var. *monospora* as a distinct species, *S. monospora* Gyeln. (1939). SEM micrographs and a revised key to European taxa are presented.

MCGRUTHER, S 1999. Treasures of the wild woodlands. *The Scots Magazine* 150(3): 268–270. A popular article on the lichen-rich hazelwood of Barnluasgan in Knapdale.

MITCHELL, M E 1998. Index of collectors in Knowles' *The Lichens of Ireland* (1929) and Porter's *Supplement* (1948), with a conspectus of lichen recording in the Irish vice-counties to 1950. *Occasional Papers, National Botanic Gardens, Glasnevin, Dublin* 11: 1–53. An invaluable source of reference for anyone tracing early records from Ireland.

MITCHELL, M E 1999. A note on the term 'lichenologist' and its synonyms. *Archives of Natural History* 26: 143–146.

MOLITOR, F & DIEDERICH, P 1997. Les pyrénolichens aquatiques du Luxembourg et leurs champignons lichénicoles. *Bull. Soc. Nat. Luxemb.* 98: 69–72. A useful account, including some line illustrations, descriptions and a key to the aquatic lichens, and their lichenicolous fungi, found in Luxembourg.



NAVARRO-ROSINÉS, P, BOQUERAS, M & ROUX, C 1998. Neuvos datos para el género *Lichenochora* (*Phyllachorales*, Ascomycetes liquenícolas). *Bull. Soc. Linn. Provence* 49: 107–124. Includes description to *L. lecidellae* Boqueras & Nav.-Ros. [see New, Rare or Interesting in this *Bulletin*], and an updated key to known species.

NAVARRO-ROSINÉS, P, ROUX, C & BRICAUD, O 1998. *Sarcopyrenia acutispora* Nav.-Ros. et Cl. Roux sp. nov., nelikeniginta fungo likenloga (Ascomycetes, Verrucariales, *Sarcopyreniaceae* Nav.-Ros. et Cl. Roux fam. nov.). *Bull. Soc. Linn. Provence* 49: 125–135. Includes an updated key to known species.

ORANGE, A 1998. Lichens in upland spruce plantations. In HUMPHREY, J, HOLL, K & BROOME, A (eds) *Birch in Spruce Plantations: Management for Biodiversity*. Forestry Commission Technical Paper no. 26. ISBN 0 85538 356 9. Pp 25–30. Results of a survey of spruce plantations in Northumberland, the Southern Uplands and the Southwest Highlands.

PALMER, K 1998. Lichen report 1997. *Bull. Kent Field Club* 43: 52–53. Includes report of rapid spread of *Parmelia soledians* away from the southern and south-eastern fringes of the county, and the expansion of *P. perlata* - the latter mainly on stonework in churchyards rather than on trees.

PALMER, K 1998. In "Reports of outdoor meetings 1997". *Bull. Kent Field Club* 43: 12–37: Sandhurst & Newenden churchyards (pp 12–13); Ash-by-Wingham and Staple churchyards (p 14); Egerton & Hothfield churchyards (pp 16–17); Wye churchyard (pp 35–36); Sholden & Sibertswold churchyards (pp 36–37).

SANDERSON, N 1998. *New Forest Epiphytic Lichen Data Base Volume 4, Part 3, Summary of Results*. Hampshire Wildlife Trust and Forest Enterprise. Pp 109 + 14 maps. (Copies available, priced £5.00 each plus post & package: UK £2.00, Europe £4.00 & rest of world £10.00 - from Neil Sanderson, Botanical Survey & Assessment, 52 Cygnus Gardens, Dibden, Southampton, SO45 5HU.) This provides a wealth of information on one of Britain's most important areas for lichens. There are detailed tables comparing the lichen floras of the many woodlands in the forest, in relation to woodland structure and history, chapters on conservation and management, and a bibliography [and more...!]. An appendix enumerates the 355 taxa recorded from the Forest.

SEAWARD, M R D 1998. Mosses, liverworts and lichens. *Trans. Lincs. Nat. Un.* 24: 182–183. Includes 11 new county records for Lincolnshire.

SÉRUSIAUX, E 1998. Deux nouvelles espèces de *Byssoloma* Trev. (lichens, *Pilocarpaceae*) d'Europe occidentale et de Macaronésie. *Cryptogamie, Bryol.-Lichénol.* 19: 197-209. Includes European distribution maps for *B. leucoblepharum*, *B. marginatum* and *B. subdiscordans*.

UK BIODIVERSITY GROUP 1999. *Tranche 2 Action Plans. Volume III - plants and fungi*. Peterborough: English Nature. ISBN 1 85716 445 8. Pp. 351. The following lichens are given full biodiversity action plans ['species BAPs'], accompanied by a map of their British distribution: *Alectoria ochroleuca*, *Arthothelium dictyosporum*, *A. macounii*, *Bacidia incompta*, *Belonia calcicola*, *Biatoridium monasteriense*, *Bryoria smithii*, *Calicium corynellum*, *Caloplaca aractina*, *Catapyrenium psoromoides*, *Cladonia botrytes*, *C. mediterranea*, *C. peziziformis*, *Enterographa elaborata*, *E. sorediata*, *Graphina pauciloculata*, *Heterodermia leucomelos*, *Lecanactis hemisphaerica*, *Peltigera lepidophora*, *Squamarina lentigera*, *Teloschistes chrysophthalmus*, and *Thelenella modesta*.

WARD, S 1999. *Local Biodiversity Action Plans - Technical Information on Species: 1. Cryptogamic Plants and Fungi*. Scottish Natural Heritage Review No. 70. Pp 80. Available from Publications, Scottish Natural Heritage, Battleby, Redgorton, Perth PH1 3EW; price £5. This is tabulated information, plus accompanying notes, on priority species in Scotland (Lichens on pp 56-78, prepared by A M Coppins and S Ward). The tables are print-outs of spreadsheets [kept up to date by SNH], giving, for each species, information such as conservation status, number of Scottish and UK localities, presence in local authority areas, habitats, threats and management requirements. The tables are especially useful to anyone beginning to draw up local Biodiversity Action Plans.

Brian Coppins

## CORRECTIONS TO MAP FASCICLES

The distribution maps are being published as loose-leaf fascicles to enable subscribers to arrange them in any order that suits their own needs. In addition, there are a number of genera where more work is needed on certain species before a useful map can be produced. With the loose-leaf system we are able to supply maps on all other species and follow these up at a later date with the more difficult ones.

It also allows us to publish preliminary maps of species where more information is required. It has been found that a map of this type may often stimulate members to report extra sites and so increase the value of a later map. Conversely, errors may be eliminated. For example in Fascicle 3, Francis Rose has noted 2 squares (41/20, and 40/59) where *Anaptychia runciata* is shown as recorded. From his knowledge of the Hampshire flora Francis is certain that these are erroneous records and that they should be deleted. He also points out that, due to a misreading of the original handwritten notes, the date for the last record of *Sticta sylvatica* in Sussex should read 1980 instead of 1930.

If you have any other additions or corrections to these maps we would be grateful to receive them. Would you please send these suggested changes to Mark Seaward, the British Lichen Society Mapping Recorder, so that they can be included in the Society's data base.

Frank Dobson

## ESTATE TO THE RESCUE OF THE BRECKLAND LICHENS

The decline of the Breckland lichens has been documented on a number of occasions. Initially attempts were made by Oliver Gilbert to transplant several of the Breckland rarities in work funded by English Nature under its Species Action Programme, but, this has not been as successful as had been hoped. There is good historical evidence that some of the other Breckland sites were bare chalk 50 years ago. Thus, after some discussion, Oliver Gilbert recommended that some trial turf-stripping should take place on Lakenheath Warren to try and repeat these unintentional earlier experiments.

The Elveden Estate who own Lakenheath Warren generously offered to to pay for the work, which involved the hire of a small digger. This took place in late February, when three plots were stripped. The work was helped by volunteers led by Nick Gibbons of the Suffolk Wildlife Trust who pulled up young pines on the site and carried out a number of different treatments on the exposed soil by various methods including trampling and raking. It is intended to monitor the experiment to see if *Buellia asterella* and *Squamarina lentigera* take up the offer of the new bare ground.

Peter Lambley

## LICHENS IN LITERATURE: 4

In a slight departure from the previous contributions in this series I am including some poems written by members.

### LICHENS

Little leafy living things  
Abound on all our trees  
On gates and posts and fences  
Wherever air is free.

Pollution kills these little plants  
Which grace our house and ground  
Their greys, their greens, their yellows  
Then are never to be found.

So guard your air and keep it clean  
Protect these little plants  
So future generations  
Can take them to their hearts

Rita Laundon

### HAIKU

I have been entertained by some haiku (the Japanese poetic form) on lichens which have recently been published on the Web by Keith A McCall, Duke University Medical Centre. He has given me permission to draw them to the attention of members. The Web page is <http://www.duke.edu/~km13/simpLichen.html>. Here are two examples:

What madman would spend his life in your company you naughty lichen	Is lichen algae or is it perhaps fungus? No, lichen is both.
---	--

I have even been inspired to try my apprentice hand.

Oh <i>Graphis scripta</i> , your spells and incantations are too hard to read.	<i>Xanthoria</i> is ornithocrophilous How euphemistic!
--	--

Haiku writing appears to be an addictive occupation!

Will Stevens

## NEW, RARE AND INTERESTING BRITISH LICHEN AND LICHENICOLOUS FUNGUS RECORDS

Contributions to this section are always welcome. Please submit entries to Chris Hitch, Orchella Lodge, 14, Hawthorn Close, Knodishall, Saxmundham, Suffolk, IP17 1XW, in the form of species, habitat, locality, VC no, VC name [from 1997, nomenclature to follow that given in the Appendix, see *Bulletin* 79, which is based on the *Biological Records Centre Instructions for Recorders*, ITE, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, PE17 2LS, 1974], Grid Reference (GR), altitude (alt), where applicable, in metres (m), date, comments and recorder. An authority with date after species is only indicated when the record is new to the British Isles. *In the interest of accuracy, typescript is much appreciated. Please use only one side of the paper. Copy should reach the subeditor at least a fortnight before the deadline for the Bulletin.* Records of lichens listed in the *RDB* are particularly welcome, even from previously known localities.

*Abrothallus usneae*: on *Usnea subfloridana* on *Corylus*, Greenfield, south side of Loch Garry, VC 97, West Inverness-shire, GR 28/20-00-, alt 90 m, January 1999.

B J & A M Coppins

*Arthonia anambrophila*: for details see under *Rinodina roboris*.

B J & A M Coppins

*Arthonia peltigerea*: on thallus of *Solorina cf. bispora*, near summit of Ben Lawers, VC 88, Mid-Perthshire, GR 27/63-41-, alt 1150 m, July 1985, collected by O L Gilbert. The ascospores in this collection are smaller than those of the British material on *Peltigera rufescens* (12-14 x 4.5-5  $\mu\text{m}$  vs 15-20 x 5-7  $\mu\text{m}$ ).

B J Coppins

*Arthopyrenia atractospora* Zahlbr. (1935): on the sides of dryish bark crevices of mature *Quercus* trunks, from three localities: (i) camping field, east side of Horner Water, Porlock, VC 5, South Somerset, GR 21/89-45-, June 1998; (ii) Craigendarroch Wood, Ballater, VC 92, South Aberdeenshire, GR 37/36-96-, May 1994; (iii) Dinnet Oakwood NNR, 9km east-northeast of Ballater, VC 92, South Aberdeenshire, GR 37/4-9--, November 1994. New to Europe, being previously reported, also on *Quercus*, from Alabama and Florida. This is a lichenized species with *Trentepohlia*, and is similar in some respects to *A. carneobrunneola*, differing mainly in its 0.14-0.2 diameter,  $\pm$ globose perithecia, slightly more elongate ascospores (17-21(-26) x 3-4  $\mu\text{m}$ ) and longer (55-70  $\mu\text{m}$ ) asci. Furthermore, *A. carneobrunneola* is a hyperoceanic species of smooth bark (rarely on smooth 'plateau' surfaces of fissured bark), whereas, in Britain at least, *A. atractospora* seems to be confined to rough bark, in areas that



are less strongly oceanic. When the taxonomy of the corticolous *Arthopyrenia* s. lat. becomes settled, *A. atractospora* will probably be treated in the genus *Naetrocymbe* Körb. as *N. atractospora* (Zahlbr.) R C Harris (*More Florida Lichens*, p. 62, 1995). This genus, is said by Harris (op. cit.) to be non-lichenized, and this is certainly true for the type species (*A. punctiformis*) and others such as *A. fraxini* and *A. rhyponia*. However, if *A. atractospora*, and for that matter *A. carneobrunneola* and *A. nitescens*, are included, the genus encompasses a lichenized element also.

B J & A M Coppins

*Arthophacopsis parmeliarum* Hafellner (1998): on *Parmelia sulcata* on *Corylus*, Greenfield, south side of Loch Garry, VC 97, West Invernesshire GR 28/20-00-, alt 90 m, January 1999. New to the British Isles. Could be mistaken for a moribund *Nesolechia oxyspora*, but the spores are ellipsoid with rounded ends and the asci are non-amyloid and *Arthonia*-like. For a full description and illustrations see Hafellner in *Cryptogamie, Bryol., Lichénol.* 19: 155-168, 1988.

B J & A M Coppins

*Buellia pulverulenta*: on *Physconia distorta* on tree in derelict garden of bothy, Achiemore, Strath Halladale, VC 108, West Sutherland, GR 29/89-58-, September 1979.

C J B Hitch

*Candelariella reflexa*: fertile but no spores seen, on branches of old *Salix* beside the River Deben, Glevering, VC 25, East Suffolk, GR 62/29-56-, February 1999.

P M Earland-Bennett

*Chromatochlamys larbalestieri*: on shaded, slightly basic rock face in woodland, Cwm Rheidol, Devil's Bridge, VC 46, Cardiganshire, GR 22/74-71-, 16 February 1998. New to Wales.

P Wolseley & A Orange

*Caloplaca crenulatella*: on shell fragments in short, calcareous, coastal turf, Ferry Links, Loch Fleet NNR, Golspie, VC 107, East Sutherland, GR 28/81-95-, alt <6 m, October 1998. New to Scotland. This material has an endolithic thallus and is separable from *C. lactea* only by examination of the ascospores, which are much shorter, and with more rounded ends, in the latter.

B J & A M Coppins

*Cladonia cariosa*: on short, calcareous, coastal turf, Ferry Links, Loch Fleet NNR, Golspie, VC 107, East Sutherland, GR 28/81-95-, alt <6 m, October 1998. Belongs to a chemical race (atranorin and rangiformic acid) not previously recorded from the British Isles.

B J & A M Coppins

*Cladonia crispata* var. *cetrariiformis*: in lichen-rich *Calluna* heath at top of old pit bing, Faucheldean Bing, Winchburgh, VC 84, West Lothian, GR 36/08-74-, alt 90 m, March 1999. New to the Lothians.

B J Coppins & D Lawson

*Collema bachmanianum*: locally abundant on short, calcareous turf, Ferry Links, Loch Fleet NNR, Golspie, VC 107, East Sutherland, GR 28/81-95-, alt <6 m, October 1998. New to Sutherland.

B J & A M Coppins

*Coppinsia minutissima*: amongst algal scum over mosses on top of slag heap, Bonawe Furnace, Taynuilt, VC 98, Argyll Main, GR 27/0--3---, March 1999. New to Argyll.

B J & A M Coppins

*Degelia ligulata*: on top of sandstone boulder in the upper supra-littoral zone, Watwick Bay, Dale, VC 45, Pembrokeshire, GR 12/81-03-, April 1979. Collected by T D V Harrison and recently confirmed by B J Coppins. New to Wales.

C J B Hitch

*Dermatocarpon leptophyllodes*: for details see under *Lecanora achariana*. For a description of this species see *Lichenologist* 30 1998 8-13.

A Orange

*Dermatocarpon miniatum* var. *complicatum*: (i) on damp north-facing rock, with one patch two inches across, VC S, 60/6--2---, March 1999; (ii) on damp cliffs outside castle, Chateau Le Mont Orgueil, VC S, 60/6--1---, March 1999. New to Jersey.

S Davey

*Diplolaeviopsis ranula* Giralt & D Hawskw. (1991): on ascomata of *Lecanora expallens* on decorticate trunk of *Fraxinus*, VC 25, East Suffolk, GR 62/31-55-, January 1992. New to the British Isles. Pycnidia develop in the margin of apothecia and also on the thallus, conidiogenous tissue branched, conidia tadpole-shaped, 1-septate, colourless, guttulate, 6-9 x 2.4  $\mu$ .m.

P M Earland-Bennett

*Diploschistes muscorum*: overgrowing *Cladonia squamules* on waste ground, just to the east of Woolwich Arsenal, London, VC 16, West Kent, GR 51/44-79-, March 1999.

S Davey

*Dirina massiliense* on urban rockery, Stanford-le-Hope, VC 18, South Essex, GR 51/70-84-, September 1998. The stone was collected by the house owner while on holiday in Linton, Somerset, in 1992 and has been on his rockery ever since with 'only the occasional sprinkle of water'. Although the lichen is in good condition it has neither soralia nor apothecia.

Alan Fryday

*Fellhanera bouteillei*: for details see under *Fellhanera viridisorediata*.

A Orange

*Fellhanera viridisorediata* Aptroot, Brand & Spiers (1998): on shaded and sheltered living leaves of *Camellia* sp. in woodland, with *Fellhanera bouteillei* and the alga *Phycopeltis expansa*, Parc Cefn Onn, Cardiff, VC 41, Glamorgan, GR 31/17-84-, February 1999. Fertile. New to the British Isles. For a description, see Aptroot, Brand and Spiers in *Lichenologist* 30(1): 21-26 (1998).

A Orange

*Hypogymnia vittata* (Ach.) Parrique (1898): locally abundant in short, coastal turf, mostly alongside tracks, Ferry Links, Loch Fleet NNR, Golspie, VC 107, East Sutherland, GR 28/81-95-, alt <6 m, October 1998. New to the British Isles. Differs from *Hypogymnia physodes* in the Pd- reaction of the medulla, browner colouration and irregular, knarled, lip-shaped soralia. Apices of most lobes have a large pore on the underside.

B J & A M Coppins

*Lecanactis premnea*: on bark at base of old coppiced *Quercus* on steep, southeast-facing slope, Fairy Isles SWT Nature Reserve, Knapdale Forest, VC 101, Kintyre, GR 16/76-87-, March 1999. First corticolous record of this species from Scotland.

B J & A M Coppins

*Lecania cyrtellina*: (i) on east-facing side of *Fraxinus* on regrowth of bark round knothole, Dodd's Wood, Sweffling, VC 25, East Suffolk, GR 62/35-63-, December 1998; (ii) on east-facing side of *Sambucus*, forming a swathe approximately 2 m long, Ramsey Wood, Hintlesham, VC 25, East Suffolk, GR 62/06-43-, March 1999.

P M Earland-Bennett & C J B Hitch

*Lecanora achariana*: on rather low, occasionally inundated, unshaded boulders in stream, with *Aspicilia casesiocinerea*, *Dermatocarpon leptophyllodes*, *Hymenelia lacustris*, *Lecanora muralis*, and the moss *Schistidium rivulare*, alt 390 m, Afon Llafar, Bethesda, VC 49, Caernarvonshire, GR 23/65-65-, May 1998. Third Welsh record, and one of the two extant colonies in Wales. Site owned by the National Trust. The remains of a hydroelectric power scheme can be seen at the site; recent proposals for a new scheme are said to have been dropped due to access problems. Many oribatid mites (probably *Ameronothrus maculatus*) were seen on the moist thalli, and were feeding preferentially on the hymenium of the ascocarps, which was pitted as a result.

A Orange

*Lichenochora lecidellae* Boqueras & Nav.-Ros. (1998): on thallus of *Lecidella elaeochroma* on *Corylus*, southeast-facing coastal woodland, Kilmore, Skye, VC 104, North Ebudes, GR 18/6--0--, May 1987. New to the British Isles. The black perithecia are formed in irregular gall-like eruptions in the host thallus. The asci are 2 or 4-spored in the Scottish specimen, but they are given only as 4-spored in the type description. At maturity, the hyaline, 1-septate ascospores are strongly constricted at the septum, which divides two  $\pm$  globose cells, and measures 11-15 (-17) x 6.5-9.5  $\mu$ m. The type material, from Catalonia, is described by Navarro-Rosinés, Boqueras & Roux (1998; see Literature Pertaining in this *Bulletin*).

B J Coppins

*Micarea inquinans*: (i) lichenicolous on *Dibaeis baeomyces*, Hannaborough Moor, Hatherleigh, VC 4, North Devon, GR 21/52-02-, February 1999; (ii) on *Dibaeis baeomyces*, North Hill, Broadhembury, VC 3, South Devon, GR 31/09-06-, February 1999. New to England. Confirmed by B J Coppins. For a description see under *Lecidea inquinans* in *The Lichen Flora of Great Britain and Ireland*, p 330, 1992.

B Benfield

*Mniacea jungermanniae*: on mossy rocks, Hannaborough Moor, Hatherleigh, VC 4, North Devon, GR 21/52-02-, February 1999. The two Devon records were found at the same sites as *Micarea inquinans*, see above. The previous record of *Mniacea jungermanniae*, (*Bulletin* 80, p 53) should read GR 31/09-07-.

B Benfield

*Nephroma tangeriense*: on sheltered coastal rocks, Balnabraid, 7km southeast of Campbeltown, VC 101, Kintyre, GR 16/76-15-, 1994. Second Scottish record. Confirmed by TLC.

B J & A M Coppins

*Ochrolechia arborea* (Kreyer) Almb. (1952): on attached *Pinus* twig, Ferry Wood, Loch Fleet NNR, Golspie, VC 107, East Sutherland, GR 28/81-97-, alt <6 m, October 1998. New to the British Isles. This species closely resembles small 'forms' of *O. androgyna* and contains gyrophoric acid (C+ red), but differs in being UV+ bright yellow due to the additional presence of lichexanthone.

B J & A M Coppins

*Parmelia minarum*: fertile on the trunk of *Pinus sylvestris*. Also on exposed roots of *P. sylvestris* and on *Quercus*, beside the River Yealm estuary, Newton Ferrers, VC 3, South Devon, GR 20/54-49-, February 1999.

B Benfield

*Parmelia reticulata*: in poor condition and very small amount near base of ancient *Quercus* in parkland, mixed with *P. perlata*, Parc Pont-faen SSSI, near Aberaeron, VC 46, Cardiganshire, GR 22/49-59-, alt 100 m, October 1998. First record for Cardiganshire.

S P Chambers

*Parmelia revoluta*: on fallen branch of *Salix*, Faucheldean Bing, Winchburgh, VC 84, West Lothian, GR 36/08-74-, alt 80 m, March 1999. New to West Lothian.

B J Coppins & D Lawson

*Peltigera neckeri*: on detritus amongst *Silene maritima* sward on shingle ridge of upper shore, Shingle Street SSSI, VC 25, East Suffolk, GR 62/37-43-, February 1999. Confirmed by B J Coppins by TLC. This is the second record for Suffolk and probably East Anglia. The first was from Cornard Mere in 1739 (Herb Joseph Andrews) VC 26, West Suffolk,, GR 52/88-38.

C J B Hitch

*Peltigera praetextata*: abundant on base of *Fraxinus* in damp woodland, Ramsey Wood, Hintlesham, VC 25, East Suffolk, GR 62/06-63-, January 1999. Confirmed by C J B Hitch. New to Suffolk and only the second record for East Anglia.

D F Strauss

*Phoma lobariae* Diederich & Etayo (1995); (i) on older parts of thallus of *Lobaria pulmonaria* on *Quercus*, Taynish NNR, VC 101, Kintyre, GR 16/72-83-, December 1998; (ii) from nearby Fairy Isles (see below under *Pycnopsamma lobariae*). New to the British Isles; previously known from the western Pyrenees. The tiny (50-100  $\mu\text{m}$  diam), partly erumpent, black pycnidia produce numerous subglobose to  $\pm$  ellipsoid, uniguttulate conidia with a markedly truncate base, 3-4 x 2.3  $\mu\text{m}$ .

B J & A M Coppins



*Plectocarpon scrobiculatae*: on *Lobaria scrobiculata*, Fairy Isles SWT Nature Reserve, Knapdale Forest, VC 101, Kintyre, GR 16/75-87-, March 1999. Third British record.  
B J & A M Coppins

*Protoblastenia cyclospora*: on northeast-facing limestone cliff, Lion's face, 2 km east of Braemar, VC 92, South Aberdeenshire, GR c.37/16-91-, alt c.400 m, November 1998. New to Scotland.

B J & A M Coppins

*Pycnopsammina lobaria* Diederich & Etayo (1995): on moribund thallus of *Lobaria pulmonaria*, also infected by *Phoma lobariae*, Fairy Isles SWT Nature Reserve, Knapdale Forest, VC 101, Kintyre, GR 16/75-87-, March 1999. New to the British Isles; previously known from the western Pyrenees. This coelomycete has conidia similar to those in *Psammina* spp., but they are produced in flask-shaped pycnidia.

B J & A M Coppins

*Ramonia interjecta*: (i) on sloping mossy *Sambucus*, Dodd's Wood, Sweffling, VC 25, East Suffolk, GR 62/35-63-, December 1998.

P M Earland-Bennett & C J B Hitch

(ii) on sloping mossy *Sambucus*, Denham, VC 21, Middlesex, GR 51/05-86-, January 1999.

C J B Hitch & A Waterfield

*Rinodina roboris*: with *Arthonia anomorphila* on bark at base of old coppiced *Quercus* on steep, southeast-facing slope, Fairy Isles SWT Nature Reserve, Knapdale Forest, VC 101, Kintyre, GR 16/76-87-, March 1999.

B J & A M Coppins

*Sarcopyrenia beckhausiana* (Lahm) Aguirre, Nav.-Ros. & Hladún (1990): on chalk pebble in close turf on west-facing bank, probably lichenicolous on the associated moribund foveolate pyrenocarp(s) (*Verrucariaceae*), Kingley Vale, Lavant, VC 13, West Sussex, GR 41/82-10-, April 1971. New to the British Isles. Resembles *S. gibba*, but has longer, filiform spores, 50-60 x (1.5-)2-2.5  $\mu$ m, that do not have swollen apices,

B J Coppins

*Skyttea cruciata*: on mite-infested *Diploicia canescens* on south wall of Alvingham church, northeast of Louth, VC 54, North Lincolnshire, GR 53/36-91-, December 1998. Confirmed by B J Coppins.

S P Chambers & E Clow

*Stereocaulon leucophaeopsis*: for details see under *Stereocaulon saxatile*.

B J & A M Coppins

*Stereocaulon saxatile*: rare, on the ground in short turf amongst oil-shale fragments, on southwest-facing slope near top of old pit bing, Faucheldean Bing, Winchburgh, VC 84, West Lothian, GR 36/08-74-, alt 90 m, March 1999. New to the Lothians; an unusual lowland record; *Stereocaulon leucophaeopsis* and *S. pileatum* were locally abundant on shale fragments and outcrops in the vicinity.

B J Coppins & D Lawson

*Stigmatidium rivulorum* (Kernst.) Cl. Roux & Nav.-Ros. (1994): three collections in E on the thallus of *Verrucaria aquatilis*; (i) Sherrycombe, 3 km east of Combe Martin, Exmoor, VC 4, North Devon, GR 21/60-47(-8)-, alt 50-150 m, August 1994; (ii) Craighall, River Ericht, near Blairgowrie, VC 89, East Perthshire, GR 27/17-48-, alt c.80 m, July 1994; (iii) north of Bridge of Dillavaired, River Isla, VC 90, Angus, GR 37/29-50(-1)-, alt 70-80 m, July 1994; (iv) a collection on *V. hydrela*: Rowbarrow Wood, Horner Water, Porlock, VC 5, South Somerset, GR 21/8--4---, June 1998. New to the British Isles. This species has numerous, minute,  $\pm$ globose perithecia, 45-75  $\mu$ m diam, and hyaline, 1-septate ascospores, (11-)12-15.5 x 4-5  $\mu$ m; further notes and discussions are given by Molitor & Diederich (1997; see Literature Pertaining in this *Bulletin*).

B J & A M Coppins

*Tephromela aglaea*: on lip of south-facing shale outcrop, Yr Wyloer, Gilfach, VC 43, Radnorshire, GR-22/95-71-, alt 370 m, June 1998. New to Radnorshire. Confirmed by O L Gilbert.

S P Chambers

*Thelocarpon sphaerosporum* H. Magn. (1935): on cyanobacterial film on low outcrops of calcareous schist on southeast-facing slope, east of Lion's Face, 2 km east of Braemar, VC 92, South Aberdeenshire, GR.37/16-91-, alt c.420 m, November 1998. New to the British Isles. The minute, partly immersed, yellow pruinose perithecia lack a distinct algal sheath, and are further characterised by having slender, unbranched paraphyses and uniguttulate, globose spores, 5-6  $\mu$ m diameter.

B J & A M Coppins

*Thelocarpon strasseri*: on decaying fallen *Fagus*, Franchises Wood, New Forest, VC 8, South Wiltshire, GR 41/23-17-, May 1998. Confirmed by B J Coppins.

S Davey

*Thelotrema lepadinum*: on trunks of *Populus tremula* and *Sorbus aucuparia* in open birchwood, to southeast of Lion's Face, 2 km east of Braemar, VC 92, South Aberdeenshire, GR c.37/17-91-, alt c.490 m, November 1998. New to Deeside.

B J & A M Coppins

*Trapeliopsis percrenata*: over peaty detritus on rotting conifer stump in clear-felled site, Coed Glasffrwd, near Strata Florida, VC 46, Cardiganshire, GR 22/75-61-, alt 220 m, November 1998. Confirmed by A M Fryday. First Cardiganshire record.

S P Chambers

*Umbilicaria grisea*: on semi-shaded boulder of inland maritime cliff protected by woodland, south of St Brelade, VC S, 60/5--1--, March 1999. First seen in 1990 and still present today.

S Davey

*Umbilicaria nylanderiana*: on east-facing vertical siliceous rock of cliff, Lion's Face, 2 km east of Braemar, VC 92, South Aberdeenshire, GR 37/16-91-, alt c.420 m, November 1998. Only a few rather small, immature thalli seen, but identification confirmed by the 1-celled thalloconidia. New to northeast Scotland; third British record.

B J & A M Coppins

*Veizdaea acicularis*: on moss on the ground in pinewood, Ferry Wood, Loch Fleet NNR, Golspie, VC 107, East Sutherland, GR 28/81-96-, alt <6 m, October 1998.

B J & A M Coppins

*Xerotrema megalospora*: on fallen decorticate pine trunk, in pinewood on northwest-facing slope, Creag Clunie, 2 km east of Braemar, VC 92, South Aberdeenshire, GR c.37/17-91-, alt 480-500 m, November 1998. Second British record. Unlike the previous collection from the Black Wood of Rannoch, no associated alga (*Trentepohlia*) appears to be present.

B J & A M Coppins

*Zamenhofia rosei*: (i) over mosses on sheltered schistose rocks in mixed *Quercus* woodland, Fairy Isle SWT Nature Reserve, Knapdale Forest, VC 101, Kintyre, GR 16/75-87-, March 1999; (ii) on mature *Ulmus glabra* on steep, southeast-facing slope, at the same site, GR 16/76-88-. New to Scotland.

B J & A M Coppins

## VISITING LICHENOLOGIST PROGRAMME AT MICHIGAN STATE UNIVERSITY HERBARIUM

The Michigan State University Herbarium (MSC) is offering a unique opportunity for lichen study. The Herbarium has recently been awarded a grant from The National Science Foundation for curatorial improvement of the Herbarium's collection. A portion of this funding is set aside to cover travel costs for lichenologists interested in performing specimen-based research at MSC. The projects should result in annotation of specimens and other curatorial improvements to the collections. Both floristic and monographic projects can be supported. The duration of the visit is open, though we expect that most visits will be for 1-2 weeks. Researchers will be encouraged to set aside specimens for loans for longer-term study. We will soon have a curatorial assistant for lichens (Alan Fryday, PhD University of Sheffield, UK) and we encourage visits after his arrival on 1 June 1999. The Programme will continue through fall.

The Herbarium's lichen collections consist of over 145,000 specimens and is one of the largest collections in North America. The collections emphasise the Great Lakes and Rocky Mountain regions of North America, the Caribbean Islands, Subtropical Latin America, and Southern Hemisphere Island groups (eg Falkland Islands, Kerguelen Islands, Juan Fernandez Islands) as well as an extensive collection of exsiccatae. Many of the specimens were collected by Dr Henry Imshaug and his students in the 1940s-1970s, and have only recently been accessioned and made available for study.

For information on how to take advantage of this opportunity, please contact Dr Alan Prather, Michigan State University Herbarium, Department of Botany and Plant Pathology, Michigan State University, East Lansing, MI 48824-1312. Phone (517) 355-4695, or email [alan@pilot.msu.edu](mailto:alan@pilot.msu.edu).

## OVERSEAS MEMBERS' TRAVEL FUND

The BLS is instituting a travel fund for overseas members. The aim is to help and encourage overseas members of the Society to visit the UK primarily to collaborate with UK members in laboratory and/or field research; requests to support visits to use facilities such as herbaria will also be considered, in which case a UK member need not necessarily be involved. Visits to attend conferences will not be supported. The total annual sum available for such awards is £1,000 and the scheme will run for two years in the first instance, after which time it will be reviewed. Council considers it preferable that a small number of people are funded to a significant level, if not in full, rather than awarding small sums to a large number of respondents. Unsuccessful applicants can apply again in a subsequent year, and for the same project, unless informed otherwise when the result of the application is announced. Recipients of grants should provide a report on the work undertaken suitable for publication in the *Bulletin* within one year of the visit and the BLS should be acknowledged for their financial contribution in any publications that should result from the work. A copy of any such publication should be lodged with the Society.

Applications should be on **one side of A4 paper** (there are no special forms) stating in the following order: applicant's name, position, full postal and e-mail addresses, fax number, the approximate dates of the visit, details of the travel costs that will be incurred, and the name of the UK collaborator (or person in charge of the herbarium or other facility). A case for support should be made in about half a page (less than 400 words) and should clearly state the aims and objectives of the project, how it will benefit from the collaboration and the expected output. Grants will be awarded partly on the basis of need and applicants should explain what efforts they have made (or will be making) to secure funding from other sources. Applicants should arrange for the UK collaborator to provide a letter of support: this should be sent directly to the Society independently of the application.

Please note that the primary objective of this fund is to provide money for travel; funds permitting, it will be our aim to support travel costs in full. If there are sufficient funds, a contribution to accommodation costs will be made which will not exceed £10 per day or £200 in total. Contributions to subsistence will not normally be made.

Two awards were made in 1998. These were to Heidi Dörfling (University of Bayreuth) for autogenetic studies on fruit body development in *Metus* and *Pilophorus* with Mats Wedin at the Natural History Museum, and to Bettina Weber (Universität Kaiserslautern) for a comparative study of German and British churchyard lichen communities with Tom Chester.

The closing date for applications for visits during 2000 is 13 November 1999. All correspondence (ie applications, letters of support and submission of subsequent reports and reprints) should be addressed to The Secretary. Successful applicants will receive their grant on arrival at their host institution.



## THE NANCY WALLACE - ALICE BURNETT FUND

This fund was set up by an anonymous donor to assist young members 'for whom finances would be difficult, to lodge at the Headquarters hotel at BLS field meetings'. The donor of this fund has agreed that the scope of this fund should be extended. Grants are now available to all members of the Society who find it financially difficult to attend field meetings.

If you feel that you would like to come to any of our field meetings but are held back by the cost, please apply to the President for consideration of a grant. We hope that these grants will encourage more members to attend these meetings.

## ANSWERS TO THE BLS QUIZ

1. 1992.
2. *Absconditella*.
3. Wade, Laundon, White, Moxham, Purvis.
4. Germany (50). (Note: the USA has 43.)
5. Browns and oranges.
6. Ben Lawers.
7. The Lizard Peninsula.
8. Alan Fryday.
9. Smith, A L (1921) *Lichens*. Cambridge University Press.
10. *Lecanora sambuci*.
11. Growing on liverworts.
12. Bean shaped.
13. *Caloplaca heppiana* changed to *C. flavescens* or *Caloplaca festiva* changed to *C. crenularia*.
14. North-east Scotland or Helmsdale.
15. *Sarccopyrenia gibba*.
16. *Fulgensia*.
17. *Lecanora* (76 spp.). Note: *Cladonia* has 73.
18. Lichens were used to dye the feathers before they were tied into artificial flies.
19. Deserts.
20. Teuvo Ahti.

## NEW MEMBERS BETWEEN 24/9/98 AND 4/5/99

- Miss A L Bateman,  
18 Parsonage Lane, Burwell, CAMBRIDGE, Cambridgeshire, CB5 0EN.
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- Mr K Cunningham  
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- Mr D M Ketzner,  
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- Mr J B Mott,  
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- Mr P J H Negal,  
Inishmore, Greenways Lane, Newton Flotman, NORWICH, Norfolk, NR15 1QJ.
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9 Stratford Avenue, ROCHDALE, Lancashire, OL11 3RA.
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- Ms A Seddon,  
Henardd, Llanfachreth, DOLGELLAU, Gwynedd, WALES, LL40 2NF.
- Mr P Verdon,  
10 Dell Court, Dell Road, GRAYS, Essex, RM17 5JS.
- Ms A Wells,  
20 Middleway, LONG MELFORD, Suffolk, CO10 9EF.

## PUBLICATIONS FOR SALE

(Subject to availability)

(All prices include postage and packing - U.S. Dollar rates are double the Sterling Rate)  
 For publications write to **Mr W G R Stevens, 29 Limerick Road, Redland, Bristol, BS6 7DY, UK**, sending Sterling cheque, payable to **The British Lichen Society**, drawn on a UK bank or on a bank with a UK branch or agent or US Dollar cheque (double the Sterling rate) or overseas members may pay by GIRO (Girobank, Lyndon House, 62 Hagley Road, Birmingham, B16 8PE, UK). The British Lichen Society Giro number is 24 161 4007.

### Bulletin back numbers

Nos 61-67, 69, 70, 72-82 each ..... £1.00

*The Lichen Flora of Great Britain and Ireland* (1992) edited by Purvis, Coppins, Hawksworth, James and Moore.

for members ..... £35.00

for non-members ..... £55.00

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Fascicle 1 (47 species of *Parmelia*) - out of stock

Fascicle 2 (*Cladonia* Part 1: 59 species)

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Fascicle 3: The Foliose Physciaceae (*Anaptychia*, *Heterodermia*, *Hyperphyscia*, *Phaeophyscia*, *Physcia*, *Physconia*, *Tornabea*), *Arctomia*, *Lobaria*, *Massalongia*, *Pseudocyphellaria*, *Psoroma*, *Solorina*, *Sticta*, *Teloschistes*

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browser for Acorn computers ..... free

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Key to Lichens on Rocky Shores by Dobson	each ..... £2.00
Proceedings of the symposium 'Taxonomy, Evolution and Classification of Lichens and related Fungi - London 10-11 January 1998' (reprinted from <i>The Lichenologist</i> Vol 30)	
	for members ..... £8.00
	for non-members ..... £12.00
<i>Bibliographic Guide to the Lichen Floras of the World</i> (second edition) by Hawksworth and Ahti (reprint from <i>The Lichenologist</i> Vol. 22 Part 1).	
	each ..... £2.00
<i>Checklist of British Lichen-forming, Lichenicolous and Allied Fungi</i> by Hawksworth, James and Coppins (1980).	
	each ..... £2.00
<i>Checklist of Lichens of Great Britain and Ireland</i> (Updated Supplement to Bulletin 72) by Purvis, Coppins and James (1994).	
	for members ..... £3.50
	for non-members ..... £6.00
<i>Mapping Cards: General, Churchyard, Woodland, Mines, Coastal, Urban, Chalk and Limestone, Moorland</i> ..... free	
<i>BLS leaflets: Churchyard lichens - Lichens on man-made surfaces</i> (encouragement and removal) ..... free	
<i>Horizons in Lichenology</i> by Dalby, Hawksworth and Jury (1988).	
	each ..... £3.50
<i>Lichen Photography</i> by Dobson (1977). (Photocopies of A4 sheets) ..... £1.00	
Lichen Society Postcards: Lichens in full colour in assorted packs of 16.	
	per pack ..... £3.00
(Orders for more than five packs are available at a reduced rate.)	
British Lichen Society Car Sticker	
5 colour 4" diameter self-adhesive plastic each	..... £1.50

## OTHER ITEMS FOR SALE

Please send orders to Brian Green, 22 Cil-y-Graig, Menai Bridge, Anglesey, LL59 5HP, UK, E-mail bgreen3@compuserve.com, sending payment with order. Cheques payable to the British Lichen Society. For overseas members requiring publications from Will Stevens and other items from Brian Green, you need order only from one person and send one cheque or International Money Order.

All the following items have the British Lichen Society logo in three colours - black outline, silver podetia and red apothecia.

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Postage - please add the appropriate postage below (ties and badges are post free).

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Overseas surface rate .....	£2.00
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## SUBMISSION DEADLINE

Please would intending contributors to the Winter 1999 issue of the *Bulletin* submit their copy to the Editor by 20th September 1999. It would be helpful, but by no means essential, for authors of longer articles prepared on a word processor to supply a copy on a 3.5" floppy disc, in addition to the hard copy. This can be MS.DOS, Word Perfect or any format from an Apple Mackintosh. Alternatively it can be sent by e-mail to [plambley@aol.com](mailto:plambley@aol.com).

## NOTES

## NOTES

## BRITISH LICHEN SOCIETY OFFICERS 1999

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**MEMBERS OF THE COUNCIL** S P Chambers, Dr O L Gilbert, Dr R I Lewis Smith, W G R Stevens, T W Chester, Professor D L Hawksworth, B Hilton, Dr F Rose.

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### REFEREES (Specialist)

O Breuss, *Catapyrenium*, *Placidopsis*; P Clerc, *Usnea* (W Europe, Macaronesia, eastern N America); B J Coppins, *Arthonia*, *Bacidia*, *Micarea* only; A Fletcher, coastal lichens; A M Fryday, montane lichens, lichens of metal-rich soils; O L Gilbert, all terricolous lichens (excl *Catapyrenium*, *Cladonia*), montane lichens on basic rocks, flint and chalk pebbles; P W James, critical complexes (all genera); R Moberg, Physciaceae; A Orange, pyrenocarpous lichens; O W Purvis, lichens on metal-rich rocks; F Rose, critical woodland lichens (epiphytes only); C Sheidegger, *Buellia*; L Tibell, Caliciales, *s. lat.*; E Timdal, *Toninia*, *Psora* and *Hypocenomyce*; T Tønsberg, corticolous sterile crusts.



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