

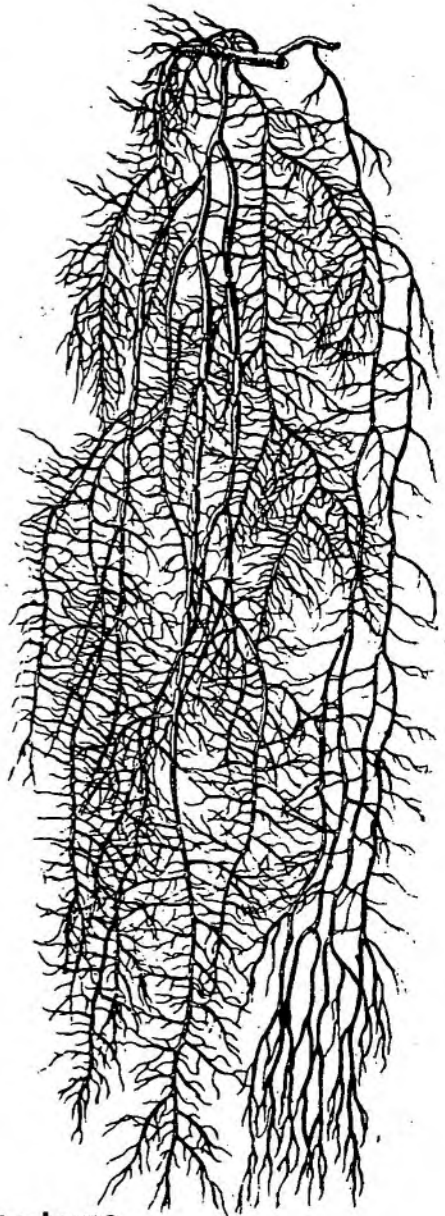
No.55

Winter 1984

**BRITISH
LICHEN
SOCIETY
BULLETIN**



PRIMER



Edited by O.L.Gilbert,
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Conservation of terricolous lichens in Britain

The report of the BLS "Lowland heath, dune and machair working party", which presents the fullest evaluation of sites of terricolous lichen interest ever made, has been well received by the Nature Conservancy Council. Its 111 close-typed pages (bigger than the Woodland Survey Report) are the result of 10 months deliberation and provide full descriptions of 91 sites and summaries of 238 others. Lowland Britain was loosely defined as lying SE of the Exe-Tees line but the notional altitudinal limit of 300 m was occasionally exceeded, particularly in the Pennines, to accommodate the spoil heaps of old lead, zinc and barium mines. Nearly all the localities in Scotland, Wales and SW England are coastal. The grant of £1350 made by the NCC allowed us to commission a considerable amount of fieldwork which resulted in many new sites being discovered.

Classification of lichen-rich terricolous habitats.

One of the first jobs the working party had to settle down to was producing a preliminary habitat classification. A simple division of sites into Coastal, with 5 sub-types (machair, dunes, maritime heath, cliff soil, shingle) and Inland, with 4 sub-types (freshwater shingle, Calluna heath, grassland, man-made), was found appropriate. They are defined below, the figures in brackets refer to the numbers of examples present in the top 91 sites; several appear twice.

Coastal Sites

Machair: These sites, unique to Britain, are restricted to N and W Scotland. They are not noted for large numbers of lichens but support a highly characteristic community (7).

Dunes: These can be very rich in lichens especially on the east coast of Scotland where acidic heathland with Cladonia becomes well-developed (12). Western, calcareous dunes are noteworthy when Fulgensia is present (10).

Maritime Heath: Cliff-top soils extending to a few hundred metres inland support characteristic lichens especially near rocky outcrops on exposed coasts (11).

Raised beach and drift: Soil-covered slopes can be rich in Collema

and some crustose rarities (2).

Shingle: Stabilised maritime shingle is rare but provides the only saxicolous habitat for seashore lichens in SE England. It also occurs amongst dunes on the E coast. Muddy estuarine shingle can support unusual lichen communities.(9).

Inland Habitats

Freshwater shingle: This habitat is very rare in lowland Britain; only one important site is known (by the South Tyne River), but others probably occur in Scotland (1).

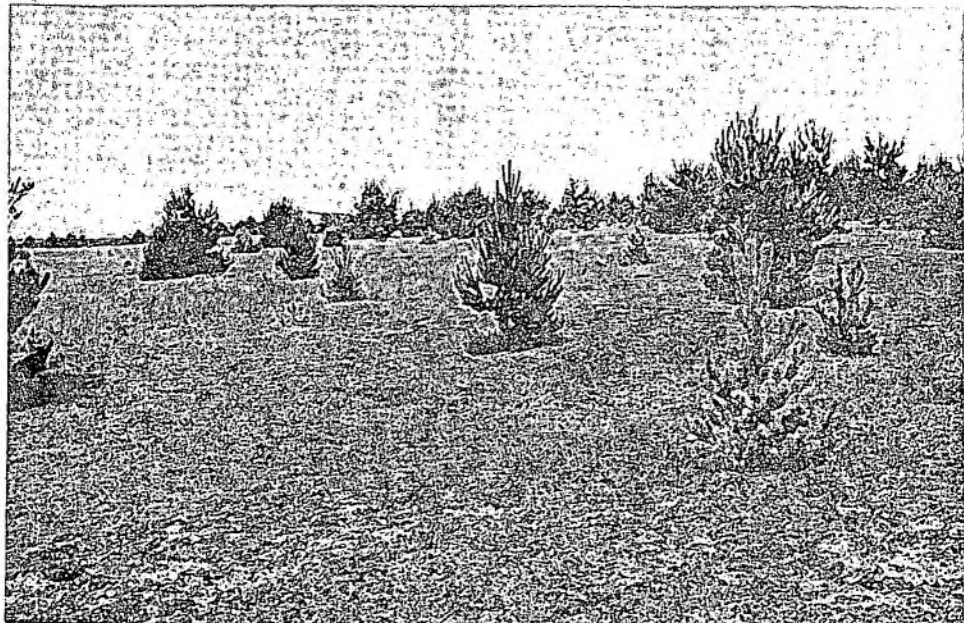
Calluna heath: This intergrades with many other habitat types and though widespread in W.Europe probably reaches its best development in this country. We recognised at least 6 types, the most important being the Dryas heaths of Sutherland, and Oceanic heaths separately distinctive in NE Scotland, Wales, Scillies, E Anglia and S England. Coastal sand-dune heaths of NE Scotland were also separately notified. All Calluna heath is characterised by large numbers of Cladonia species. The heathland of N Scotland is noteworthy for the presence of alpine lichens which grow at sea level (43).

Grassland: Acidic grassland tends to be poor in lichens but calcareous grassland is much more interesting. Chalk "downland" has many rarities and is under considerable threat (6), while limestone grassland is even richer but less pressurised (6). The E Anglian Breckland is the most "continental" grassland type in Britain (3).

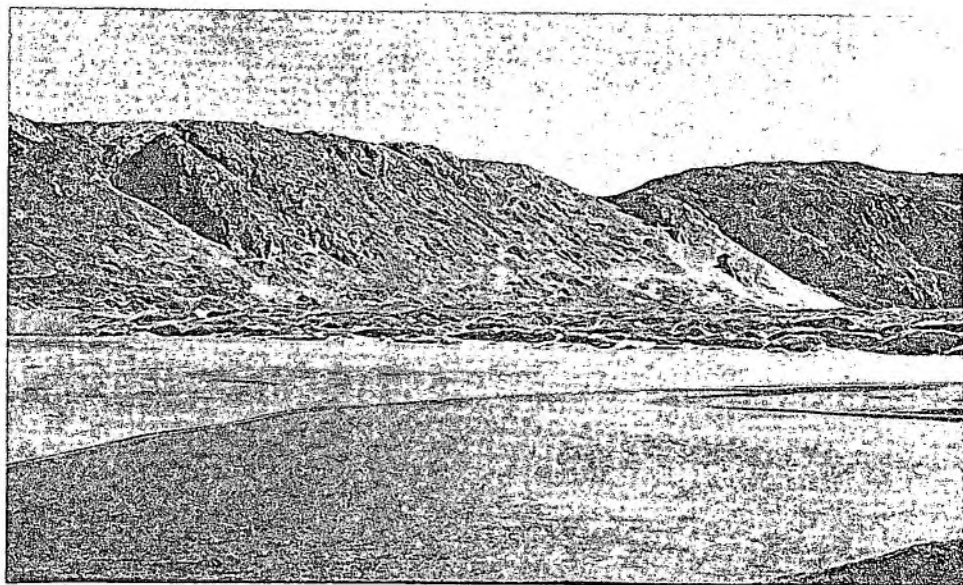
Man-made habitats: We recognised many man-made habitats as being noteworthy for terricolous lichens. These sites are important refuges for lichens in lowland agricultural areas. For example railway cuttings are the best places for terricolous lichens in the Midlands and two reclaimed coal-pit spoil heaps have been distinguished for their rich Cladonia communities (6). Several mine spoil areas, rich in heavy-metals, were also listed(5).

How to recognise a "good" site

Thirteen criteria were used for evaluating sites, the most important being the number of terricolous species present. Over 50 is exceptional, the highest total of 60 comes from an acid dune-shingle complex in East Sutherland. Admittedly though, Calluna heath tends to have the highest totals (20 Cladonia species is not unusual), while calcareous dunes may have only 10 lichens and lack Cladonia



Lakenheath Warren, Suffolk supports a terricolous lichen community of national importance. It is our only inland site for Fulgensia fulgens which occurs with Buellia asterella, Squamarina lentigera and Psora decipiens.



Invernaver National Nature Reserve, Sutherland is an important dune/machair site where alpine lichens descend to sea level and many species reach their northern limit in Britain.

entirely. The size of the lichen-rich area is also critical, together with the total area available for further colonisation. This arises from an unusual consideration - that some terricolous lichen communities are short lived and tend to disappear and recolonise over a cycle of about 10-15 years. This may be a result of naturally occurring fires, soil disturbance, trampling, grazing or the life cycle of the dominant flowering plant. Consequently it is important to maintain a minimum site-area so that the succession of lichens can be maintained. It also means that a site may be disappointing on one visit yet later becomes very rewarding.

The future

Out of 498 sites assessed, enough information was available to enable 339 to be graded. We described 4 as sites of International Significance (Grade 1), 24 as National (Grade 2), 26 as National Back-up Sites (Grade 3), 37 as Regional (Grade 4) and 82 as of County Significance. The four International sites - defined as the best example of a particular community in Europe, to the best of our knowledge - comprise a machair in the Inner Hebrides, a Calluna heath complex in the New Forest, an acid dune system in eastern Scotland and a dune/limestone heath in Pembrokeshire. We expect that all sites of Regional or greater status will be scheduled and protected by the NCC as sites of Special Scientific Interest (SSSI's) and the International and National Sites will appear in the next edition of the Nature Conservation Review.

Through lack of sufficient information 159 terricolous sites remain ungraded (about 700 remain from the woodland survey). Indeed, it must be noted that our surveys reveal many gaps in our knowledge. Large parts of the country are poorly explored by lichenologists who seem to prefer places already known as rewarding. To conclude, if you want to contribute to lichen conservation, please send us some data. Even a brief first inspection of a site can provide an indication of its value.

I would like to express thanks to the working party members (Brian Coppins, Oliver Gilbert, Peter James and Peter Lambley), to the NCC for providing the finance, especially Lynne Farrell and Pat Doody, and to all BLS members who provided data. The report is available on loan by application to the BLS librarian.

ANTHONY FLETCHER
(Conservation Officer)

Nominations required for officers and council members

Nominations for officers for 1985 and three council members for 1985-86 should be sent to the Secretary, Miss F. Joy Walker, Department of Botany, British Museum (Natural History), Cromwell Road, London, SW7 5BD, before 22 December 1984. No person may be nominated without their consent. Mr. F.H. Brightman, Dr. B.W. Ferry and Mr. O.W. Purvis retire from the Council and are not eligible for re-election as council members.

Council have nominated Mr. F.S. Dobson as Assistant Treasurer and Dr. C.J.B. Hitch as Field Meetings Secretary.

Conversazione and book sale - Friday 4 January 1985

Following the success of last January's venture arrangements have now been made to hold a 'repeat performance' the evening before the A.G.M. This will again be held between 6.00 and 8.30 p.m. in the Common Room, Palaeontology Department, British Museum (Natural History). The admission fee of £7.00 covers a three-course cold buffet, provided by the same team, and a glass of wine (extra can be purchased). Members are asked to bring books, reprints, illustrations etc, of lichenological, botanical and natural history interest from the sale of which the Society will benefit on a 50/50 basis. Frank Brightman (c/o British Museum (Natural History), Cromwell Road, London, SW7 5BD) will be available to give advice on suitable reserve prices, if needed, and will be happy to receive items for sale from members unable to attend. A limited number of back issues of the Lichenologist will be auctioned.

Persons wishing to attend should send a cheque for £7.00, made in favour of the British Lichen Society, to Joy Walker, Botany Dept., British Museum (Natural History), by 28 December 1984. As numbers may have to be limited it is a case of first come first served. Unsold items will be available the next day at the A.G.M. for members unable to attend the conversazione.

Annual General, Lecture and Exhibition Meeting - Saturday 5 January 1985

The Annual General Meeting will be held at 10.30 on Saturday 5 January 1985 in the Demonstration Room in the Department of Palaeontology (ground floor) at the British Museum (Natural History) Cromwell Road, London, SW7 5BD. The nearest LT Underground station is South Kensington, and Cromwell Place or the subway connects with the Museum. Cars may be parked in the Museum's front car park.

It is hoped that all members will endeavour to attend, and take advantage of the opportunity of meeting others with mutual interests.

Agenda

1. Apologies for absence
2. Minutes of the last Annual General Meeting
3. Matters arising
4. Reports of the officers
5. Meetings 1984-85
6. Election of Auditor
7. Election of three members of Council
8. Election of officers
9. Subscriptions.

Resolution 1. Council proposes that the subscription should be increased to £15 from 1 January 1986, with an increase to four issues of The Lichenologist a year.

Resolution 2. Council proposes that the subscription of all members outside the U.K. should be paid in U.S. dollars and this should be increased to 30 dollars from 1 January 1986.

10. Any other business.

F.Joy Walker
Honorary Secretary

Following the Annual General Meeting there will be a slide show and exhibition meeting. Members may show up to five slides taken on 1984 field meetings. Persons are kindly requested to make a special effort to contribute exhibits of lichenological interest. Demonstrations should include a title and name of exhibitor.

The lecture meeting will continue in the afternoon in the same room. The meeting is entitled TRAVELS WITH A LICHENOLOGIST. Non-members are welcome. Please display the enclosed poster. The full programme is as follows:

- | | |
|-------|--|
| 10.00 | Museum opens to the public |
| 10.30 | Annual General Meeting |
| 11.30 | Slides of 1984 field meetings |
| 12.00 | Exhibition meeting |
| 12.30 | Lunch. Members are kindly requested to make their own arrangements. |
| 14.00 | Lecture meeting: J.R. Laundon (British Museum, Natural History): Introduction. |

- 14.02 Mr. I.P. Day : Lichen ecology of montane forests in south-west China.
- 14.30 Dr. A. Fletcher : Lichen collecting in Brazil - an illustrated guide.
- 15.00 Tea interval.
- 15.30 Dr. M.R.D. Seaward : Polish lichen flora: past, present and future.
- 16.00 Dr. D.H. Dalby : Lichens of a west Norwegian birch wood.
- 16.30 Prof. D.L. Hawksworth : Lichens in Saudi Arabia's deserts and mountains.
- 17.00 Discussion.
- 17.15 Close.

Grapevine

To begin with, a sigh, of regret and annoyance, prompted by a recent issue from the Institute of Terrestrial Ecology, a slim volume entitled 'Britain's Railway Vegetation'. Highly professional and "eminently presentable" (as D.H. Lawrence observed of the bourgeois), it has managed to rattle Grapevine by its apparent emergence from that old Linnaean darkness in which lichens are among the unmentionables. Or possibly the author and editors see themselves as a vanguard for whom fungi and hence lichens are no longer classifiable as vegetation. If this latter is the case (and the fact that algae receive equally short shrift makes it unlikely), a note to that effect should have been inserted. If not, professionalism has nodded in omitting the epithets, "vascular and bryophyte", from the title. One tires of such blinkered professionalism. The I.T.E. should know better.

Next, further to Frank Brightman's recommendation (Bulletin 52:24) that "lichens should be crossed off the list of dye plants entirely", a dyer's angle on the matter is given in the Magazine of the Edinburgh Guild of Weavers, Spinners and Dyers (Summer 1983:58) in "Dyeing with conservation in mind" by Su Grierson, the talented and respected Perthshire dyer. Mrs. Grierson points out there in detail what she has more recently expressed succinctly in a letter to Grapevine: "the education of dyers about the needs of conservation is the best answer to the problem. It is at least constructive whereas arguments strongly expressed in lichen journals will make little difference". Hostile argument may, in fact, stop dyers

approaching lichenologists for the information and advice that would discourage and prevent the atrocious disregard for lichen conservation that Frank properly opposes.

Now to happier things, among them the gift of the gods to natural historians that Louis Macneice called "the drunkenness of things being various". Dennis said in "British Ascomycetes" that a good species should be recognisable in the field by an expert. Mindful of this while reading the recent Lichenologist and mouthing a regretful goodbye to Lecidea granulosa and L. uliginosa as we have known them, Grapevine found himself wondering what else but taxonomic genius, its analysis founded in loving fieldwork, could make such splendid sense, for amateur and professional alike, of the new dispensation of Trapeliopsis and Placynthiella. Thank heaven for Coppins, James and Co.

Our motivations as lichenologists are, after all, responses to that mainspring of our study, lichen beauty and diversity. The analyst of lichen form and chemistry, the photographer of growth, colonisation and competition patterns, the beginner confronting the morphological range of species in his home area, all of us have been touched by that beauty and diversity. Once that has happened, we are lichenologists for life and, as Geoffrey Hill says in 'Tenebrae':

"BE FAITHFUL grows within the mind
As lichen glimmers on the wood".

VINIFERA

Country Diary - 8: The French Connection

The alarm shattered the silence of the dark calm night at 5 a.m. on Monday 19 October 1981 and I was soon up and dressed. After a substantial breakfast I wheeled my bicycle from its cherished position in my hall only to find rain already splattering. Hastily I telephoned the Met. Office and the met man assured me that the rain would not reach Boulogne until dusk. Therefore I rode off to Wimbledon where I carried my cycle on to the train bound for Waterloo. Here I changed trains and was whisked across the Back Garden of England, homing into Dover Priory at 9.05. From the station I cycled to the docks, the rain now steady but light. I purchased a 'cheapie' ticket to Boulogne for £5.50, my bicycle going free. Once on the P & O Ferry I was told to lash my bike to iron bars in the hold, to which were also roped huge towering juggernauts. Once at sea the lorries creaked and groaned as huge waves battered the ship. The whitewashed cliffs of Mrs. Thatoher's

Britain disappeared in a veil of rain. After some time a voice on the Tannoy advised passengers to adjust their watches to French time, a bewildering request since for four weeks in October the time in Britain and France is in step.

At noon I rolled off the ferry and onto the streets of Boulogne-sur-Mer, at first forgetting about riding on the right. Now the cobbles were bone-dry, parched by a cold, howling wind. The road inland climbed endlessly uphill, dominated by telegraph-poles, and progress was painfully slow. At Mt Lambert there were extensive views: an undulating, agricultural plateau with scattered hedgerows and fields, tiny, depopulated villages, empty country lanes, all reminiscent of East Anglia and not at all like Kent. At Maquinghen the occurrence of Lecanora conizaeoides on fence-posts made me feel at home.

After eight miles I was deep in the calm and beauty of the Forêt Dom de Boulogne, a large continuous area of deciduous woodland five miles across. It was a joy to see that the traditional management of the forest as coppice-with-standards was much in evidence, in contrast to the neglected or coniferised woods in England. For some lichens, however, this was a disadvantage since there were no really ancient trees. The roads into the forest were barricaded with wooden bars and signs indicating no entry, noise-free zone, and nature reserve. These barriers were no obstacle to an Englishman - I simply pushed my bike in the ditch around their sides. The young trees were rather bare but immature trunks were covered with sheets of Graphis scripta, whilst mature boles were thickly covered with Evernia prunastri and Parmelia caperata. There was no sign of Lecanora conizaeoides here.

Soon the forest was far behind me but at Alincthun the distant view was suddenly blotted out. The rain had arrived. The ornate Romanesque church at le Wast was locked so I could not take shelter. The restored twelfth-century walls housed a good lichen flora, including Calopaca flavescens (C. heppiana), C. teicholyta, and, most interesting of all, C. dalmatica (Massal.) H. Olivier (C. schaeereri (Arnold) Zahlbr.). This fruiting lichen has a variable yellow crustaceous thallus dissected by black prothallus lines forming a mosaic. It has a scattered distribution on limestone on both sides of the Channel and is included in the British checklist under the synonym C. velana. The memorials were mostly tall pedestals surmounted by crosses from the late nineteenth century onwards, rather poor in lichens when compared with churchyard memorials in Kent.

The rain was now torrential and continuous, the wind gale-force. I must abandon my tour of the Collines du Boulonnais and return. The most direct route was by the N.42, a major highway. Huge articulated lorries roared passed, the gusts from their air currents throwing me to the verge. In such winds the N.42 was suicidal and I therefore returned by country lanes, despite the much longer 16-mile route. Soon I was literally soaked to the skin, so much for 'waterproof' clothing.

By Mt Lambert darkness glossed the reflections in the driving rain, whilst the wind had now reached storm force. Yellow headlights were dimmed by swirling mists. Balancing on a bicycle had become impossible. I had to dismount and push my cycle down the long descent into Boulogne. The town now looked quite different in the darkness and I could not find the docks. Eventually I heard some people speaking English so followed them along. Fortunately they, too, were heading for the ferry.

The lights of the terminal beckoned me with prospects of shelter and warmth. My last act on French soil was to pour copious water from my shoes. The 7 p.m. sailing arrived back at Dover at 9.0. With five minutes to spare I caught the 21.26 train back to London, arriving at Morden just after midnight. My day in the Pas-de-Calais had indicated a lichen vegetation less affected by air pollution than that on the English side of the Channel, but with less rich churchyards because of the smaller churches and more recent memorials. Years ago Francis Rose wrote some most interesting papers (e.g. Botany on two coasts. New Scientist 15 July 1965: 158 - 161) comparing the higher flora on both sides of the Channel. A similar comparison of lichen is much needed. English and French lichenologists should extend their horizons.

J. R. LAUNDON

Where Angels Fear to Tread: Bettyhill: Summer 1984

In my (in)capacity as an amateur lichen huntress Oliver has asked me to write a social report for this meeting. But how much of the cat can I let out of the bag? And, do I risk being drummed out of the B.L.S? It was such a delirious spree: expedition planning even included numerous bottles of Old Malt which were generously plied by our editor every evening; "so that Brian and Peter should be kept happy at

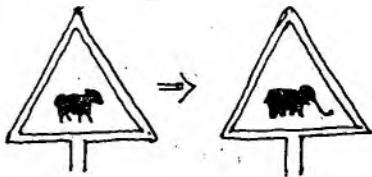


their microscopes into the wee small hours". While Vagn, our Danish member, topped this up by contributing some incredible Jungle Juice.

There were also those sessions at the bar before dinner with the splendid stout patroness keeping us in order. On the last evening, she served us with her own home-brewed mountain dew. Those canny Scots, never was bill paying so painless. We were falling about long before the money was out of our pockets or any proper classification of the stuff had been achieved. Even Tony was beaming away inside his beard which usually hid a much grimmer expression, as he struggled with Administration and the planning problems presented when seventeen lichenologists 'hit' a birchwood or mountain slope and scattered like naughty sheep, each intent on getting his or her nose into the choicest lichen patch.

Perhaps a high octane level was also responsible for the prone attitudes of some of the party on that hot blue afternoon on the cliffs about Strathy Bay. Was it really necessary to give those maritime heath roots quite such prolonged and earnest eyeball treatment?

Other striking features of that week were native kindness and humour and the beauty of the coastline. Where else would the Minister's wife lend you her bathing costume or the Countess of Sutherland's gardener and his wife prescribe a whisky tea to ward off the shivers after a slip on the brink of the Great Smoo Cave waterfall? Where too could there be a Woolley Mammoth warning sign by the roadside or views like those to be seen from the top of Ben Loyal? ... the party in the woods below (who were giving the midges a good time) thought we were getting wet up there in the clouds ...



Fortunately the ratio of experts to amateurs was high. This meant that people like me who had forgotten, for the nth time, the name of

some perfectly ordinary species could hide their embarrassment by sneaking round each of the 'cognoscenti' in turn to whine "Please Sir, what is this Sir"? The answer I learnt to hate most was Lecidea lactea", it seemed to manage to have quite a lot of different forms - but perhaps these were because of some environmental modifications suffered in the numerous wettings of my pocket when passing streams and ponds.

It was not Peter James' fault if my darkness remained 'unlichened'. He tried his best to clear up identificatory problems with two masterly lectures on some of the species of Fuscidea and Usnea. During our last meal together a Water Safety Pamphlet caused much laughter. Alas, it was a week too late. "Go with friends", "Avoid fast flowing water" it said. This brought back a vision of Oliver tempting the fates in the limestone gorge, springing exuberantly from one foam-dashed boulder to the next; and my difficulties in keeping dry.

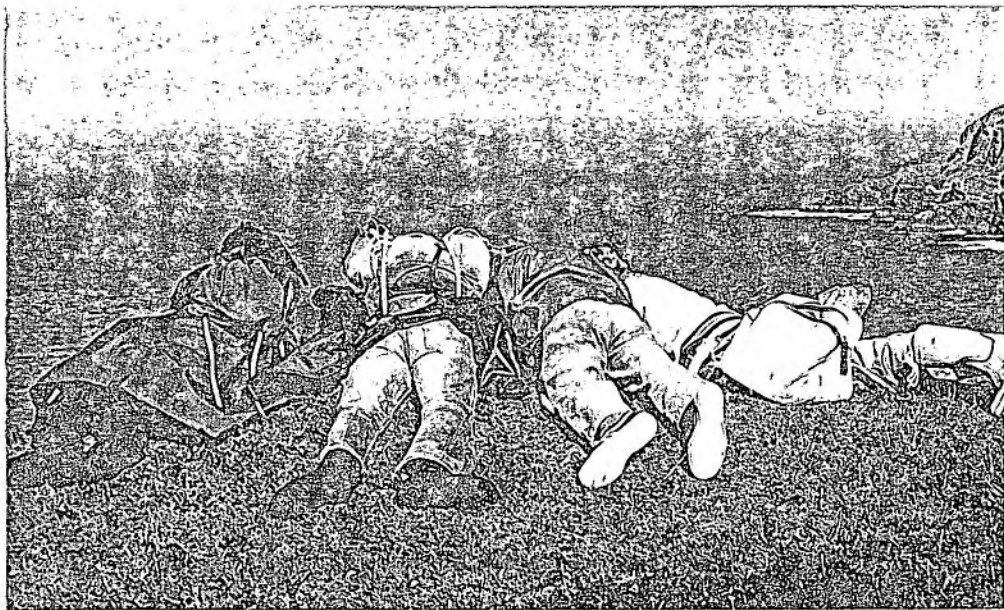


That evening there were other noises of jollity besides our own. We were told, "Och, it's only Hamish, he goes a wee bit queer o'Saturday nights".

Hamish, it seems, was running about in the gloaming naked - whooping; while the village maidens tittered behind the inn door.

On departure next day I saw that the chocolate bar I was munching called itself "Mini Nuts". Perhaps John 'our' psychiatrist, and newest member, would think this an appropriate classification for a group of lichenologists?

VANESSA WINCHESTER



Examining the maritime heath at Strathy Bay,
(Tom Chester)

Overheard at Betty Hill

You can tell if Peter isn't sure of an identification by his turn of phrase. "I think," he will say, "your specimen can be accommodated within . . ." Such specimens should henceforth be referred to in the following manner:-
Usnea (acc. P.W.J.) hirta (L.) Wigg.

Similar unsureness on Brian's part will result in your being told to "Go away and cut a section." The trouble is that the only things he tells you to do this with have such small fruits they need a microtome.

Have you crossed Caloplaca hepiana off the mapping card? Afraid it no longer exists. It's been "Jacked".

A new book on lichens

In September a new book on lichens entitled The Lichen-Forming Fungi by D. L. Hawksworth and D. J. Hill was published by Blackie, price £7.95 softback, £16.95 hardback. It is a comprehensive text book aimed mainly at undergraduates but members of the BLS will find it provides a useful opportunity for keeping up to date with modern lichenology. Don't be put off by the unprepossessing cover or the jargony title, the text is what matters and this is both readable and wide ranging. If you want to be informed about secondary metabolites (lichen acids), lichenicolous fungi, biogeography, or if you still feel uncertain about the difference between isidia and soredia this is a book for you. The majority of examples involve British lichens and appear familiar but much of the material will be new to members, for example I recognised only 4 of the 56 figures as having originated from the Lichenologist. A full review of the book will be appearing in the journal. In the meantime it is warmly recommended.

Dramatic lichen response to falling levels of sulphur dioxide in rural areas

It is widely known that ground-level sulphur dioxide (SO₂) concentrations in towns have declined considerably in recent years. At the same time it has been thought that in rural areas the reduction has been much less, due to the 'tall stack' policy of the Central Electricity Generating Board. Instrument measurements have revealed

that over the last 15 years SO₂ levels in the countryside have fallen by well over 50% to a current mean level of around 30 µg/m³. Pollution scales suggest that at these levels many sensitive species of epiphytic lichens should be returning to areas from which they have probably been absent for over 100 years. Though a time-lag occurs before recolonisation takes place it is to be expected that by now a substantial lichen reinvasion of rural areas should be taking place and this is exactly what is happening.

In the last few years numerous small colonies of fruticose, epiphytic lichens such as Evernia prunastri, Ramailina farinacea and Usnea spp. have been turning up throughout the Midlands. The most receptive habitat is willow carr in valley bottoms, or lines of large Crack or White Willows in sheltered, swampy places. Evernia is usually the first to return followed by Ramalina and then Usnea. The Usnea is usually U. subfloridana, but young U. inflata and U. filipendula (on birch, Malham Tarn) have also been recorded. It is speculated that the propagules, probably in the form of soredia, are being carried in by the wind probably from sources in North Wales and Cumbria. The reason for willows being the most favourable niche for recolonisation is connected with their alkaline bark and habit of growing in sheltered places. Reinvasion on other trees with moderately basic bark, such as ash and sycamore, is occasionally encountered. Usnea is now occurring on lignum. Extensive observations on this phenomenon have been made in Cheshire by Brian Fox and Jonathon Guest who know Usnea from willows at over 20 localities. Derbyshire, South Yorkshire, West Yorkshire and Leicestershire are other Midland counties where it has also been observed.

Another aspect can be seen on the Millstone Grit moors of the Southern Pennines where there is much recent invasion of rock surfaces by species previously present at a low density, so total lichen cover, especially in sheltered localities is increasing rapidly. Perhaps we should start monitoring the decline of Lecanora conizaeoides, a project impossible to imagine 15 years ago.

A CLADONIA PRIMER

by
Anthony Fletcher

Identifying Cladonia has always been a problem.

One evening, after collecting a large bagful, I open Duncan at page 60 and read "Basal thallus crustose.....". Hmm, not sure really, I'll try the next option; "Basal thallus squamulose or absent" ! Perhaps that's it ?, I'll mark the place with a finger and go on to question two. Question two asks "squamules absent" or "squamules usually present" ? Oh dear!, I'll leave another finger here and go on to eight. Question eight, "Discocarps red" or "Discocarps brown or absent". Well, mine has some little black dots! Perhaps they'll go red or brown when they've grown up. I'll leave a finger here and go on to 21

One hour later: the specimen seems to be *Cladonia cariosa*, though growing on wood, with some characteristics of *C. glauca* and *subulata* (I wonder if my Pd is working properly ?) Oh well, another failure, I'll consign it to my "indet" box and send it to Coppins for his Christmas holiday.

Now I'm not against Duncan's key. In fact it's a very good one. What causes the problem is that *Cladonia* doesn't obey any key. This is not because the characters are particularly subtle or difficult to interpret, but because they are not always properly developed. However, identification can be straightforward when it is understood that *Cladonia* species can be identified from a particular permutation of characters. Identification is assured if the whole set is present. But when one or more characters is absent or poorly developed we need to examine the character permutations for related species and eliminate them one by one. Eventually we arrive at a particular name because no other fits as closely.

Of course, character permutations can be much more than an aid to identification. It's a chilling fact that *Parmelia* species have been discovered after predicting the existence of an entity with a particular set of characters. (We have only 74 *Cladonia* taxa in Britain; surely we can predict and find a few more!).

The second major problem I've had with *Cladonia* lies in memorising the character permutations and putting the right name to each, especially in the field. As a desperate measure, for some years I have carried a small notebook which lists the minimum information necessary to identify lichens in the field. The information therein is strictly confidential, being not always complimentary to the species or their discoverers. But here are a few pages (cleaned up somewhat), which I hope will be of interest and perhaps of use.

DISCLAIMER SECTION - This primer is not a taxonomic monograph. It is simply a collection of organised notes. They are intended for those persons who are reasonably familiar with the genus and who know the 20 or so common species. The reader should certainly be competent when diagnosing the difficult characters (corticate granules, peeling squamules and so on). In fact, the glossary and notes in Duncan are quite satisfactory. For field workers I recommend taking copies of these tables into the field, together with the basic chemicals, K and Pd. One novel feature is the UV lamp test which I find invaluable for a preliminary screening, especially of mixed samples. The

CLADONIA PRIMER

CLADINA: squamules absent, podetia repeatedly branched

Usnic acid present, cortex yellow green in daylight

Discocarps red, k+purple

K+yellow, orange or red

Pd+yellow, orange or red

Sorediate: farinose, granular or corticate granules

Scyphi present, wider than podetia

Branch axils or scyphi perforated

Podetia with longitudinal fissures

Medulla UV+ white

Chemical constituents code

Habitat

Geographical distribution

Notes

mediterranea	+ + - - - - - - - -	2 heath	Lizard Hd	Decumbent, wide axils, cf arbuscula
stellaris (alpestris)	+ + - - - - - - - -	A extinct ?	northern	Podetia deep y-green, divergent, ball-like, coarse
portentosa (impexa)	+ + - - - - - - - -	A heath	widespread	Podetia 3-tomic, slender, pale yellow
arbuscula	+ + - - r - - - - -	B heath	widespread	Podetia 3-5-tomic, apices recurved, grey-green
ciliata var. tenuis	+ - - - r - - - - -	I heath	Pod dichot,	coarse-warted, mauve-brown
rangiferina	+ - - y r - - - - -	C heaths	northern	Podetia 3-5 tomic, recurved, mauve-grey-brown, cort cottony
mitis	+ + - - - - - - - -	D dunes	eastern	Podetia 4-tomic, white-yellowish
incrassata	- + + - - - - - - -	E peat, wood	mostly N	Squamules tiny, pod sessile, tiny, numerous
luteoalba	- + + - - - - - - -	F silic-crev	N and W	Squamules yellow-cottony below, large, recurved, pod v. rare
bellidiflora	- + + - - - - - - -	E peat	northern	Podetia peeling squamules, discs capitate
metacorallifera	- + + - - c + - - -	K moss rock	northern	Base black, podetia coarse, squamulose, cf coccifera
coccifera	- + + - - c + - - -	H acid soil	widespread	Pod rarely squamulose at base, discs large, confluent
deformis	- + + - - f + - - -	I alpine	rare, N	Podetia 5cm high, scyphi regular, cf sulphurina
sulphurina (gonecha)	- + + - - f - - + -	L moorland	East and N	Podetia 5cm high, malformed-irregular, very rarely scyphi
pleurota	- + + - - g + - - -	H moorland	alpine	Podetia corticate at base, cf coccifera, doubtfully UK
amaurocraea	- + - - - - + - - -	J moors	extinct ?	no squamules, scyphi v narrow, podetia turgid, cf uncialis
uncialis f. biuncialis	- + - - - - + - - -	K wet peat	widespread	no squamules, podetia dichot, spiky, cortex smooth inside
uncialis f. uncialis	- + - - - - + - - -	L peat	rare in NE	no squamules, podetia polychot, spiky, cort smooth inside
zopfii	- + - - - - + - - -	M heath	mostly N	no squam, pod dichot, prostr, cort fibrous inside, blue in herb
botrytes	- + - - - - - - + -	J pinewood	Scotland	Discs very pale brown, on cut stumps
foliacea	- + - - r - - - - -	N calc	lowland	Squamules 1-3mm wide, white-yellow below
convoluta	- + - - r - - - - -	N calc	lowland, S	Squamules 2-10mm wide, white-yellow below
turgida	- + - y r - - - - -	C heath	extinct ?	Squamules large, cf uncialis
carneola	- + - - - f + - - -	O peat, wood	northern	Dine v. pale, pod translucent, scyphi wide, yellow fimbriate
bacillaris	- - + - - f - - - -	P peat	widespread	Podetia ecort-sorediate to base, densely squamulose
polydactyla	- - + y o f + - - -	Q Cort, peat	widespread	Squamules small, deeply incised, blue-grey, orange at base
umbricola	- - + y o f + - - -	J Corticole	widespread	Squamules small, deeply incised, chemovar polydactyla ?
macilenta	- - + y o f - - - -	Q wood	widespread	Squam. tiny, blue-grey, pod. subulate, cf polydac./coniocraea
digitata	- - + y o f + - - -	Q Corticole	widespread	Squam. sored below, orange at base, pod curved, poorly developed
floerkeana	- - + - - g - - - -	P heath	widespread	Podetia gran-squam, thin, discs capitate

squamosa	- - - - -	+ + - + R	heath	widespread	Pod with peeling squamules, gaping, axils, very variable
crispata v. cetrariiformis	- - - - -	- + - + R	acid soil	moorland	Pod cortex smooth, true squamules, lateral-proliferating
crispata	- - - - -	- + - + R	acid soil	E. Scotland	Pod cort smooth, regular, toothed, much branched
fragilissima	- - - - -	- + - + A	peat	Northern	Squam pycnidiate, brittle, pod fenestrated, cf cervicornis
stereoclada	- - - - -	r - - - -	?	v rare	Pod solid, dichot, widespread
strepsilis	- - - - -	y - ± - -	S peat	northern	Squam C+ green, convex, bronze-brown, shiny, cushions
phyllophora (degenerans)	- - - - -	r - + - -	I moors	Northern	Pod proliferous from margins, cortex base black, cracked
cervicornis v. verticillata	- - - - -	r - + - -	I acid soil	widespread	Podetia 2-5 tiered from centre
caespiticia	- - - - -	r - + - -	I heath	Western	Podetia inapparent, discocarps sessile
furcata	- - - - -	r - + - -	I heath	widespread	Pod brown, slender, sparsely dichot, fine pointed, cf rangiformis
capitata	- - - - -	r - - - +	I peat	v. rare	Pod capitate, lacerate, squamules small, cochleate
rappii	- - - - -	o ± - - -	X 2 records	chemovar of	subcervicornis ?
subsquamosa (allosquamosa)	- - - - -	y o - ± -	- Q coastal	western	Podetia with peeling squamules, brownish
furcata v. subrangiformis	- - - - -	y r - - -	- C calc	widespread	Podetia white-warted, green-brown, decumbent
gracilis	- - - - -	y r - ± -	- C acid soil	widespread	Pod with 1-tier from margin, mixed subulate/scyphose
cervicornis v. cervicornis	- - - - -	y r - + -	- C acid soil	widespread	Squamules compact-cushioned, lilac below, cf verticillata
subcervicornis	- - - - -	y r - ± -	- C moorland	upland	Squamules 10-20mm high, grey-black at base, pod irregular
stricta (lepidota)	- - - - -	y r - ± -	- C snowpatch	alpine	Squam fine-incised, cups prolif. from centre, base dark
symphycarpa	- - - - -	r o - - -	+ U calc moss	v. rare	Squamules horizontal, spreading, podetia scarce
parasitica	- - - - -	y o - - -	+ Q oak woods	widespread	Squam tiny, granular, swards, pod short, bent, decorticate
maxima (ecmocyna)	- - - - -	y r - - -	- C snowpatch	alpine	Squamules inconspicuous, pod turgid, green, cf gracilis
rangiformis	- - - - -	y r - - -	- V calc	widespread	Pod divergent, sparsely squam, green warted, cf furcata
firma (nylanderii)	- - - - -	y r - - +	- C Calc	Western	Squam mauve below, 10-12mm high, fragile, cf cervicornis
cariosa	- - - - -	y r - ± +	- C sandy soil	eastern	Pod squamulose, discocarps capitate, lacerate
polycarpoides	- - - - -	r o - - +	- C ?	v. rare	Squam ascending, pycnidiate, lacerate
acuminata	- - - - -	r o g - -	+ Y calc	alpine ?	cf macilenta, doubtfully UK
pyxidata	- - - - -	r c + - -	- I soil	widespread	Squam upright, cups regular, decorticate, cf pocillum
pocillum	- - - - -	r c + - -	- I calc	widespread	Squamules numerous, horizontal-spreading
anomaea (pityrea)	- - - - -	r c ± - -	- I soil	lowland	Pod peeling squam/granules/sored, brittle, translucent
macrophylla (alpicola)	- - - - -	y c - - +	- X moorland	alpine	Pod peltate-squamulose, ecorticate areas, lacerate
cenotea	- - - - -	- f + + +	+ R pinewood	Cairngorms	Scyphi base fissured, decayed wood, entirely sorediate
glauca	- - - - -	- f - + +	+ R heath	Eastern	Base ecorticate, sparsely dichotomous, cf subulata
ochrochlora	- - - - -	- r f + - -	- I wood	widespread	Podetia regular, base corticate, cup corticate inside
fimbriata	- - - - -	- r f + - -	- I fresh soil	widespread	Podetia base ecorticate, cup wineglass shaped
subulata	- - - - -	- r f - - -	- I neutral	widespread	Pod irreg, lip curled, corticate, antler-like, cf glauca
coniocraea	- - - - -	- r f - - -	- I stumps	widespread	Podetia base corticate, subulate, curved
rei (nemoxyna)	- - - - -	- r f - - -	- I heath	rare, East	Podetia base ecorticate, cf subulata
cornuta	- - - - -	- r f - - -	- I peat	northern	Base corticate to half height, brown, often large
cythomorpha	- - - - -	- r f + - -	- I moss rocks	upland	Squam large, inflated, brown-pink veined below
conoidea	- - - - -	- y r f + - -	- C fresh soil	widespread	Podetia corticate at base, short, scyphi regular
chlorophaea	- - - - -	- r g + - -	- I neutral	widespread	Base corticate, cort-granules v small
cryptochlorophaea	- - - - -	- r g + - -	- Z neutral	widespread	Chemovar of chlorophaea (cryptochlorophaeic acid)
merochlorophaea	- - - - -	- r g + - -	- Z neutral	widespread	Chemovar of chlorophaea (merochlorophaeic acid)
grayii	- - - - -	- - - g + - -	- 4 neutral	widespread	Chemovar of chlorophaea (grayanic acid)
acubriuncula	- - - - -	- r u - - -	- I peat	northern	Subulate pod, sor-isidiate at tips, recurved, cf furcata

Some memorabilia of the industrial manufacture of the lichen
dyestuffs, cudbear and orchil - Part 1

An old copper plate in the possession of Yorkshire Chemicals Ltd., Leeds, reads:

MARSHALL & HARMAN

Cudbear, Orchil and Indigo Manufacturers
Norwich and Manchester

Orchil orders to be addressed to 48 Water Street, Manchester, as Mr. Fleming's business has been taken over by Marshall & Harman.

The business it names was founded in Norwich in 1820 by John Marshall who in 1823 entered into "a seven year agreement with Francis Peacock of London for their joint manufacture of Cudbear and Orchil" The success of the venture was such as to make the purchase of Fleming's similar business in Manchester desirable.

By 1843 Norwich was losing its position as a textile centre. The heart of the woollen industry was shifting from East Anglia to Yorkshire with its advantageous coal-fields and plentiful soft water. John Marshall moved, settling in premises in Cudbear Street, Leeds (see Fig.1), which the firm still occupies. The earliest documentation describing the premises as "at Cudbear Street" is dated 1870. In the latter half of the 19th century the works were bounded by Cudbear Street to the west and Orchella Place to the north (see Fig.2). The latter street is now built over and the fate of the street-sign is unfortunately unknown.

Marshall's firm, today Yorkshire Chemicals Ltd, has a record of continuous manufacture of cudbear and orchil for well over 100 years, which must be the longest in this country, production having been carried on until 1940 when the firm was the only commercial producer in the land and when declining demand made lichen dyestuff production an impracticable proposition. A last bale of Orchella Weed was preserved for a while out of sentiment but was later given to Johnson's of Hendon to make litmus.

Cudbear sold for £150 per ton in the 1790s. In 1821 total British production was between 300 and 400 tons. The manufacture of both cudbear and orchil continued well into the days of synthetic dyes.

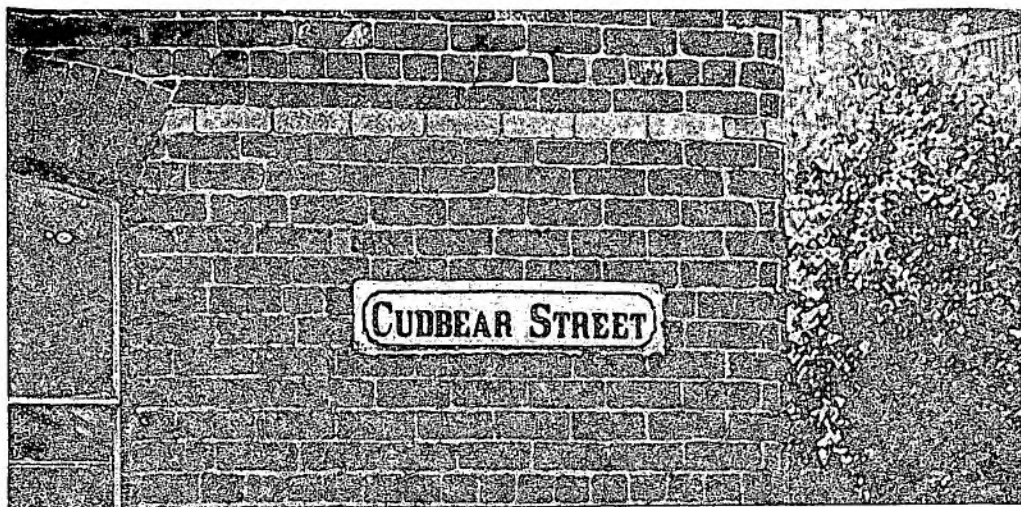


Fig. 1. The street sign of Cudbear Street, Leeds, 1984
(Photo: D J Hackett.)

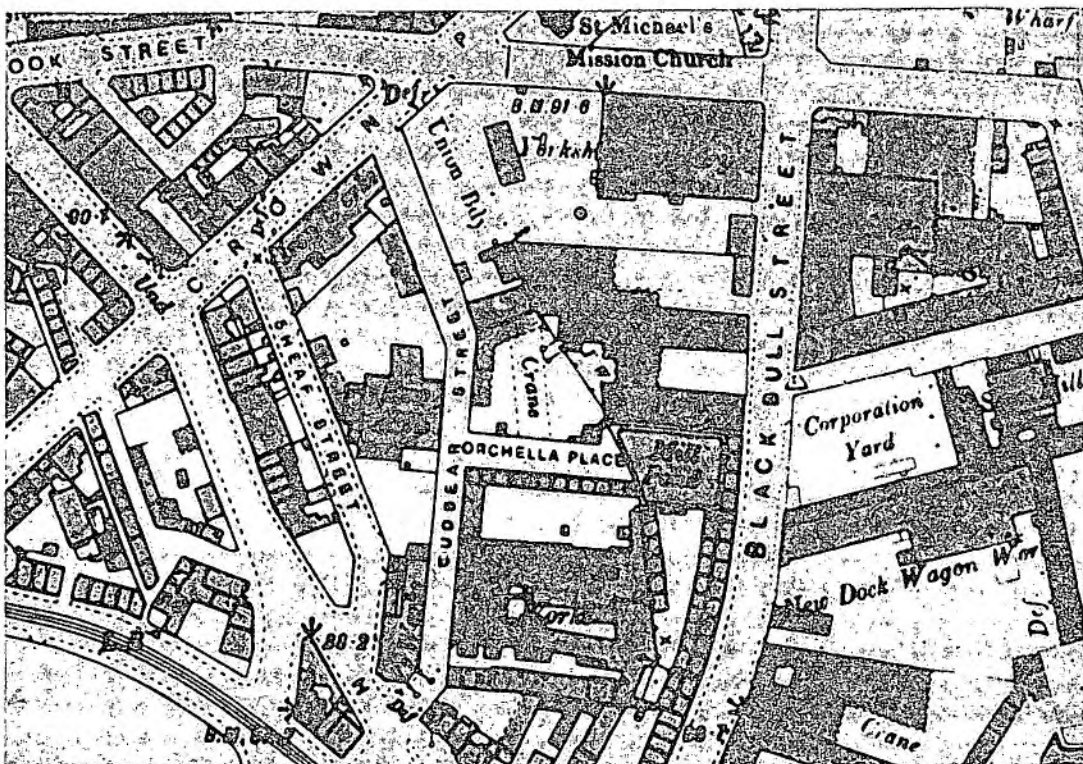


Fig. 2. Details from the 25" to the mile Ordnance Survey Map of Leeds in c. 1920, showing Cudbear Street and Orchella Place.
(Photo: D J Hackett.)

They held a high place in the estimation of dyers for their uses in modifying other dyes, for dyeing wool brown or other dark shades and for saddening bright synthetic greens and reds. Such was their reputation that the makers of the new coal tar colours even produced synthetic 'orchil' and 'cudbear' substitutes, and some crimson and claret azo dyes were misrepresented for sale as 'Orchil Extract' 'Orchil Red' and 'Orsellin'. Tests to detect such substitutes can be found in the Journal of the Society of Dyers and Colourists, 1888 (page 345).

(For much of the information in Part 1 I am indebted to Mr. J. Hall and to Yorkshire Chemicals Ltd for free use of their unpublished history, "Clemons, Marshall & Carbert Ltd.")

ALBERT HENDERSON

What is the effect of acid rain on lichens?

The effect of acid rain on lichens is not well understood. This is a personal opinion of its effects. Members who have further observations to add or who disagree with what is written below are urged to contribute a short article to the debate so as to help clarify the situation.

Most of the sulphur released during the combustion of coal and oil, is initially emitted into the atmosphere as sulphur dioxide (SO_2). Sulphur dioxide dissolves in water to produce sulphurous acid (H_2SO_3) which is a weak acid but ionises to yield the toxic ion HSO_3^- and the highly toxic undissociated H_2SO_3 molecule. Around sites of intensive industry sulphur pollution occurs mainly in this form and so has a direct toxic effect on lichens.

The 'tall stack' policy of the CEGB has increased the residence time of SO_2 in the atmosphere so by the time it gets down to ground level, often at sites several hundred kilometres away, it has mostly been oxidised to SO_3 which is washed out in rain as sulphuric acid (H_2SO_4). The normal pH of rain is 5.6 but sulphuric acid is very strong and produces low pH rain (down to pH 2.1 in USA; 2.4 in UK; 2.6 in Scandinavia) which can quickly leach poorly buffered habitats. SO_3^- and SO_4^- are not very toxic to lichens. So briefly, SO_2 produces a direct toxic effect on lichens while acid rain has a pH effect via leaching or a direct (but different) hydrogen ion toxicity.

These two influences lead to very different effects in the field. Usnea spp. for example are tolerant of acid conditions and therefore are largely unaffected by acid rain, while they are rather sensitive to the toxic SO_2 derivatives HSO_3^- and ' H_2SO_3 ' which leads to their extinction around urban areas and industrial sources emitting pollution from low chimneys. The opposite response is shown by Parmelia sulcata a species which when growing epiphytically requires neutral bark conditions. This lichen declines rapidly in poorly buffered habitats under the influence of acid rain (M.R.D. Seaward, pers. comm.) but is rather more tolerant of HSO_3^- and ' H_2SO_3 '. Species such as Lobaria pulmonaria seem to be sensitive to both influences, while Parmeliopsis ambigua and Hypogymnia physodes can show considerable tolerance of both.

This is a preliminary note, as little detailed work has yet been done on the effects of acid rain on lichens. Complicating factors include separating the effects of short-term pulses of extreme acidity from the long term effects of acid input. Also the acidity of rain in Britain is increasingly due to nitric acid, currently the ratio of sulphuric:nitric acid in our rainfall is c.7:3. The effects of nitrogen oxides (NO_x) on lichens has hardly been studied.

B.S.E. Mountain Cryptogam Weekend: Beinn Dearg Area, Scotland
22-25 June 1984

As a departure from the usual one day outings, Alan Bennell, the Cryptogamic Secretary of the Botanical Society of Edinburgh, organised a more adventurous long-weekend meeting. The chosen venue included the mountains of Seana Bhràigh (28/281.878; alt. 3040 ft) and Beinn Dearg (28/259.811; 3547 ft.) on the border of East and West Ross (v.c. 106 and 107), both mountains renowned for their arctic-alpine vascular plants. The meeting was attended by bryologists, lichenologists, mycologists and a few clandestine phanerogamists, 14 persons in all. The lichen trio comprised Richard Brinklow, Ray Woods and BJC. Our first objective, Seana Bhràigh was approached from Oyckell Bridge along Glen Einig and Strath Mulzie. Although the latter involved a six mile trek, our tents and other heavy gear were skilfully transported in a Land Rover by Chris Sides of the NCC Field Survey Team. We were greeted at our camp site by Loch a' Choire Mhòir with a flurry of sleety

snow. Thankfully this quickly passed allowing tents to be pitched dry, and morale was boosted by some Scottish 'high spirits' and eager anticipation of the finds to come.

On the Saturday the summit area of Seana Bhragh was reached from the north side via Loch Luchd Choire. Collections from large boulders by the loch included a large Lecidea resembling a dark brown form of L.fuscoatra but with C-, PD + orange, I + blue thalline reactions. This was our first addition to the British list, L. paupercula Th. Fr. The vertical faces of fine-grained schist at the base of the corrie cliffs were largely dominated by Fuscidea spp., eg. F. intercincta, F. gothoburgensis (fertile), F. recens, F. kochiana, F. tenebrosa and the related Rhopalospora lugubris, but sheltered niches introduced variety with Lecanactis abscondita, Melaspilea subarenacea and Lecania baeomma. Ascending gullies in the cliff, areas of calcareous mica-schist were encountered with an expectedly interesting flora, including Pannaria hookeri, Sagiolechia rhexoblephara, Peltigera leucophlebia and an undescribed, normally sterile, sorediate Pertusaria with abundant apothecia. Passing by Alectoria nigricans on a shelf, the summit ridge was eventually attained. The summits of many Scottish mountains are often disappointing, except for the view on a fine day. On this occasion we were blessed with clear, calm weather, a panoramic view and a rich terricolous flora including Lecidoma demissum, Solorina crocea, Ochrolechia tartarea, O. androgyna, O. frigida (including its sorediate f. lapuensis), Pertusaria oculata, P. dactylina, Pannaria pezizoides, Psoroma hypnorum, Catillaria contristans, Lecidea limosa, Micarea assimilata (not seen in Britain since 1856, on Ben Lawers), M. incrassata, Thamnolia, Peltigera degenii, P. scabrosa (previously known only from Orkney) and Stereocaulon saxatile (form with Nostoc-containing cephalodia), plus Lithographa tesserrata (on small boulder). An enigmatic tiny 'Lecidea' with a thin white thallus on silty soil in shallow depressions, later proved to be the first British record of Arthrorhaphis fuscireagens, a parasite of Baeomyces roseus. Rocks and boulders near the summit were rather dull except for large thalli of Allantoparmelia alpicola, the sterile, white, verrucose thalli with black soralia of Lecidea nigroleprosa, and Mycoblastus affinis which is more characteristically lignicolous or muscicolous. We descended down Creag an Duine on the east side of the pinnacle that terminates the eastern end of the summit ridge. Near the base of this steep

slope (at c.1500 ft) we paused at a small outcrop of calcareous schist with Opegrapha saxicola, Polyblastia cupularis, and Lecidea erythrophaea previously known only as an epiphyte on 'basic' bark (e.g. Fraxinus).

Sunday was less arduous and spent on the crags to the east of the camp site (28/31.88; 1500-2000 ft.). Sheltered outcrops with calcareous schist yielded additions such as Belonia russula, Diplotomma epipolium and Polyblastia theleodes. On these crags generally we encountered many of the species seen on the corrie cliffs the previous day. A remaining puzzle collection is a 'Lecidea' with minute, black umbonate apothecia on a brown, finely areolate, C + red thallus, and perhaps related to L. limborina. It was growing amongst Rhizocarpon obscuratum, of which it may be a parasite. R.K.B. was the most energetic and on reaching higher ground was rewarded with Alectoria nigricans, A. sarmentosa subsp. vexillifera, Bryoria bicolor and Solorina crocea. Later in the day we broke camp and returned by the same route to Oykell Bridge, and journeyed on, via Ullapool, to a holiday cottage by Loch Broom.

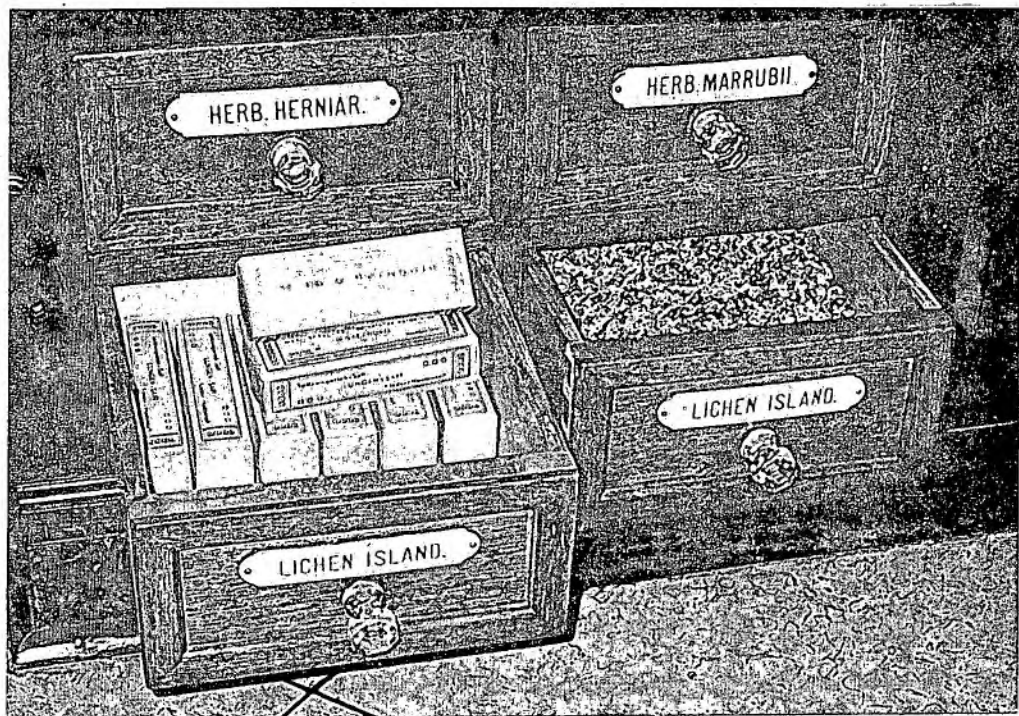
After spending the night in relative luxury we set off for our second main objective, Beinn Dearg. We left our cars at the upper end of the forest at Inverlael and walked in along Gleann na Sqaib. A brief investigation at the base of the huge cliffs below Diollaig a' Mhill Bhric revealed little of note, so we ascended the large gully of Cadh' an Amadain (28/248.820) into the clouds, eventually reaching the stone wall that runs along much of the summit ridge. Conditions there were appalling with poor visibility, strong winds, driving rain and, despite up to six layers of clothes, bitterly cold. The terricolous, summit flora seemed not as rich as on Seana Bhragh, but this impression may have been biased by the weather. Lecidea limosa and Pertusaria oculata were plentiful and other finds included Arthrorhaphis fuscireagens, Lopadium pezizoideum (the alpine 'form' with large apothecia with brown margins) and a small patch of Ochrolechia cf. inaquatula (sterile, irregularly sorediate, C + red, PD + orange-red). The last named will be new to Britain if confirmed. Definitely new to Britain, and covering a small stone in the turf, was Micarea subviolascens, (Magnusson) Coppins. Formerly known only from Norway this species could be confused with dark fruited forms of Lecidea leucophaea and may have been overlooked; it is easily identified microscopically by its greenish, K + violet hymenium,

a dark purple-brown hypothecium and branched paraphyses.

We left the summit in a north easterly direction following the line of the stone-wall. A few additions were noted, such as Cetraria hepatizon, but of considerably greater interest were boulders surrounding a late snow patch. The community here is very similar to that in equivalent situations in the Cairngorms with Lecanora leptacina, Lecidea caesiocrata, L. griseocrata, Lecidella bullata, Rhizocarpon badioatrum and, in addition, Micarea subviolascens. Unfortunately time and weather only allowed a brief study of the snow patch sites, and they are certainly worth another visit.....

(A general summary of the meeting including data on bryophytes will appear in BSE News, and detailed reports are to be submitted to the Nature Conservancy Council).

BRIAN J. COPPINS.



Chemist shops in Austria continue to sell lichen remedies, in this instance Cetraria islandica for respiratory complaints, (Photo M.R.D. Seaward, Salsburg, 1984).

Inexpensive ultra-violet light detectors

The UV test is appearing regularly in identification literature these days. So far it has only been of use to those with access to laboratory-type UV lamps such as are found in Geology or Chemistry Depts. I can report that the situation has now radically changed - having discovered that philatelists use cheap models which work very well with lichens.

I have tested two models both made by UVITEC.

Model	Power Supply	Size	Lamp-window	Price
"micro"	4 size AA batteries	75x85x20mm	10x40mm	\$17.95
"minor"	mains240v	50x85x30mm	12x12mm	\$16.95

The "micro" is a hand-held portable about the size of a cigarette carton and is potentially usable in the field. The "macro" has a mains power cable for use in the lab (I have purchased this model). Both machines are recommended for use in a dark room but cupping the hand around them suffices. The window needs to be about 3-5cm away from the object. I found that the mains version gave the brighter reaction with lichens but may be fresh batteries were needed in the "micro". Both models supply UV light at 254nm and white light is filtered out. The lamps appear safe to use provided you don't stare at the windows. What we need now is a list of UV+ lichens in the British isles. Can someone oblige?

Supplier: Philately shops or UVITEC, Ramley Eng. Co.Ltd., Cambridge, U.K.

ANTHONY FLETCHER

Letter to the Editor

Dear Sir,

As a very new member of the B.L.S. I really ought not to be putting pen to paper just yet, but mention in Bulletin 53, of Collins new Guide to the Ferns, Mosses and Lichens prompts me to ask if anyone else is having the same problem over some of the photographs as myself. I first noticed it with photograph 639 Pyrenula nitida, which appears to have sunken fruit bodies - turned upside down they stick out like sore thumbs. Likewise no.'s 372, 428, 435, 441, 446, 493, 552, 553, 604 and 621 all look better the other way up or should I have my eyes checked?

Yours sincerely,

Ian C. Munro.

28/1/84.

New, rare and interesting British lichen records

Siphula ceratites (Wahlenb.) Ach. was first discovered in Britain in 1955 by D N McVean in Coulin Forest, Wester Ross. It was subsequently found in 1971 by D.S. Chapman near Inverkirkaig, in 1979 by myself near Cove and in 1984 by Dr. Ian D. Pennie near Sheigra. All these localities are in north-west Scotland. This arctic lichen of characteristic appearance is illustrated in Brightman & Nicholson (1966), Krog et al (1980) and Jahns (1983). It has a circumpolar, disjunct and predominantly coastal distribution. It tends to occur over shallow peat or peaty gravelly soil in shallow depressions in the bed rock where rain may collect but which can periodically dry out entirely. Within its four localities its distribution varies from widely scattered isolated colonies covering less than ten square centimetres to such abundance as to appear as though there has been a light fall of snow over a considerable area.

The writer is investigating the distribution of this lichen and would welcome reports of further discoveries. I'm sure it occurs elsewhere in north-west Scotland and is being overlooked, where there are only odd small colonies, for poor Cladonia uncialis.

Occurrence:	Coulin Forest	O.S.198-853.	230 hectares.
		Alt. 300m-620m	
	Inverkirkaig	O.S. 210-918-.	200 hectares.
		Alt.450m.	
	Cove.	O.S. 180-891-.	20 hectares.
		Alt.60m.	
	Sheigra.	O.S. 219-962-.	2 hectares.
		Alt.100m.	

KENNETH ROSS.

Miscellaneous

Subscriptions

Peter Lambley has left these shores to hunt for lichens in Papua New Guinea amongst other activities. Please send your subscriptions for 1985 (£12-50) to Frank Dobson who has taken over his work. No action is required if you pay by standing order. (Mr. F.S. Dobson, 58 Parkway, London, SW20 9HF). Many thanks go

New Secretary required

Joy Walker will be stepping down as Secretary at the end of 1985. She would be grateful to hear from anyone willing to take on this office as soon as possible so that sufficient overlap can occur.

Membership list

Limited stocks of the membership list issued in 1983 are still available. Anyone who has recently joined the Society and would like a copy please contact Joy Walker.

B.L.S. conservation achievements appreciated

The B.L.S. is singled out for special mention on p.111 of the Nature Conservancy Councils recent publication Nature Conservation in Britain. They write "The British Lichen Society has been particularly energetic supplying valuable information to the NC/NCC on important lichen sites and undertaking numerous surveys and also research on the adverse effects of atmospheric pollution on the British lichen flora, one of the most important in Europe."

D.L.H.

Copy date for next Bulletin

Closing date for copy for the next Bulletin is 10 April 1985. Please send contributions typed in double spacing. Photographers please remember I am hoping to publish a photograph of general lichenological interest in each number but have not got one for the next issue.

New Members

The following new members joined the Society between April and September, 1984. JA = Junior Associate

Miss R. Berry, Mordaboy's, Ickworth Park, Little Saxham, nr. BURY ST. EDMUNDS, Suffolk.

Mrs. P. Clayton, New Cottage, Herringfleet Road, St. Olaves, nr. GREAT YARMOUTH, Norfolk, NR31 9HW.

Mrs. S. Combret, 38 Rue de la Citadelle, ST. JEAN PIED DE PORT, France 64.

Mr. T. Duke, Sandrock, The Compa, KINVER, Staffs.

Miss M. Feliz, Dep. Botanica UFRGS, Av. Paulo Gama 5, No. 90,000 PORTO ALEGRI, Rio Grande do Sul, Brazil.

Mrs. L.I. Ferraro, Ibone, Casilla de Correo 209, 3400 CORRIENTES,
Argentina.

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Mr. E. Woelm, Beethovenstrasse 23, D-4500 OSNABRUCK, West Germany.

Request for material of Nectriella

This is a request for fresh or air dried specimens of Nectriella.
Look for reddish perithecia immersed in thalli of macrolichens and
also Illosporium - like anamorphs - pinkish fungal growths often
forming circular lesions on both macrolichens and crustose species.
The material is needed to grow in pure culture to learn more about
the biology of Nectriella for a PhD thesis.

Send to: Mrs. R. Lowen, Commonwealth Mycological Institute, Ferry Lane,
Kew, Surrey, TW9 3AF.

Literature on lichens - 43

Please note that only a selection of papers on lichens is listed in this series, chiefly those considered to be of particular interest or importance to the membership. All papers affecting the British lichen checklist are included.

Lichenologist 16(2) was published on 12 July 1984 and 16(3) on 18 October 1984.

ANON. 1984. Lichens and mineral exploration. Rep. Br. Mus. nat. Hist. 1981 - 1983: 58 - 62. [Potential use of lichens in mineral prospecting.]

BULBRICK, P., GALUN, M. & FRENSDORFE, A. 1984. Observations on free-living Trebouxia de Puymaly and Pseudotreboouxia Archibald, and evidence that both symbionts from Xanthoria parietina (L.) Th.Fr. can be found free-living in nature. New Phytol. 97: 455 - 462.

CHATER, A. [O.] 1984. God's acre: the conservation of consecrated vegetation. Churchscape 3: 21 - 27. [Botany and conservation in churchyards.]

COLLOFF, M. J. 1983. Oribatid mites associated with marine and maritime lichens on the island of Great Cumbrae. Glasg. Nat. 20: 347 - 359. [Notes on 16 species of mites associated with lichens.]

COPPINS, B. J. 1984. Key to crustose pyrenocarpous lichens on limestone and associated substrata (excluding aquatic and marine habitats). Bull. Br. Lichen Soc. 54: 36 - 45. [Illustrated.]

COPPINS, B. J. & JAMES, P. W. 1984. New or interesting British lichens V. Lichenologist 16: 241 - 264. [Revision of the Lecidea coarctata, L. granulosa, and L. uliginosa groups in Britain with keys to all species. Checklist additions and changes: Aphanopsis coenosa (Ach.) Coppins & P. James (Lecidea humigena), Placynthiella icmalea (Ach.) Coppins & P. James, P. oligotropha (Laundon) Coppins & P. James (Lecidea oligotropha), P. uliginosa (Schrader) Coppins & P. James (Lecidea uliginosa), Trapelia corticola Coppins & P. James, T. placodioides Coppins & P. James, Trapeliopsis aeneofusca (Flörke ex Flotow) Coppins & P. James, T. flexuosa (Fr.) Coppins & P. James (Lecidea aeruginosa), T. gelatinosa (Flörke) Coppins & P. James (Lecidea gelatinosa), T. granulosa (Hoffm.) Lumbsch (Lecidea granulosa), T. percrenata (Nyl.) G. Schröder, T. pseudogranulosa Coppins & P. James, and T. viridescens (Schrader) Coppins & P. James (Lecidea viridescens).]

HAWKSWORTH, D. L. 1983. A preliminary key to Acarospora species in the British Isles. Bull. Br. Lichen Soc. 52: 42 - 44. [Key based on publication by Clauzade & Roux; several 'species' reduced to synonymy.]

HAWKSWORTH, D. L. & HILL, D. J. 1984. The Lichen-forming Fungi. Blackie, Glasgow & London. [£7.95 paperback; £16.95 hardback. Standard review.]

HONEGGER, R. 1984. Cytological aspects of the mycobiont-photobiont relationship in lichens. Lichenologist 16: 111 - 127. [Surface similarities at the mycobiont-photobiont interface.]

JAMES, P. [W.] 1982. Key to Parmelia in Great Britain. Bull. Br. Lichen Soc. 51: 27 - 36.

LAUNDON, J. R. 1984. The typification of Withering's neglected lichens. Lichenologist 16: 211 - 239. [Includes review of main British lichen publications 1724 - 1780. New names for British checklist: Anaptychia runcinata (With.) Laundon (A. fusca), Arthonia varians (Davies) Nyl. (A. glaucomaria), Caloplaca crenularia (With.) Laundon (C. festiva), Cladonia humilis (With.) Laundon (C. conoidea), C. peziziformis (With.) Laundon (C. capitata), C. ramulosa (With.) Laundon (C. anomaea), Collema auriforme (With.) Coppins & Laundon (C. auriculatum), C. dichotomum (With.) Coppins & Laundon (C. fluviatile), C. fuscovirens (With.) Laundon (C. tuniforme), Dermatocarpon luridum (With.) Laundon (D. weberi), Leptogium corniculatum (Hoffm.) Minks (L. palmatum), L. gelatinosum (With.) Laundon (L. sinuatum), Lobaria virens (With.) Laundon (L. laetevirens), Pachyphiale carneola (Ach.) Arnold (P. cornea), Peltigera didactyla (With.) Laundon (P. spuria), P. lactucifolia (With.) Laundon (P. hymenina), Physconia distorta (With.) Laundon (P. pulverulacea), Ramalina lacera (With.) Laundon (R. duriaei), and Tornabea scutellifera (With.) Laundon (T. atlantica). The author citation of five other British lichens is emended.]

MAYRHOFER, H. 1984. Die saxicolen Arten der Flechtengattungen Rinodina und Rinodinella in der Alten Welt. J. Hattori bot. Lab. 55: 327 - 493. [Taxonomic account of 99 species, with keys, drawings of spores, and distribution maps. Rinodina immersa (Körber) Arnold and R. trachytica (Massal.) Bagl. & Carestia are British checklist additions.]

MCCARTHY, P. M. & HOLLIGAN, P. M. 1984. Inishvickillane, Co Kerry: an important lichen site. Ir. Nat. J. 21: 266 - 274. [Account of 160 lichens from this Blasket island.]

PENTECOST, A. & COPPINS, B. [J.] 1983. Key to Opegrapha in Great Britain. Bull. Br. Lichen Soc. 53: 27 - 35. [Several 'species' reduced to synonymy.]

PURVIS, O. W. 1984. The occurrence of copper oxalate in lichens growing on copper sulphide-bearing rocks in Scandinavia. Lichenologist 16: 197 - 204.

SCANNELL, M. J. P. 1983. Vezdaea leprosa (P. James) Vezda, a lichen new to Ireland. Ir. Nat. J. 21: 178 - 179.

SEAWARD, M. R. D. 1983. Lichens of Co. Laois. In FEEHAN, J. (Ed.) Laois. An Environmental History: 130 - 131, 491 - 493. [General account and list.]

SEAWARD, M. R. D. 1984. Census catalogue of Irish lichens. Glasra 8: 1 - 32. [List of 957 taxa, with vice-county distribution.]

SEAWARD, M. R. D. 1984. Lichen herbarium of Wrocław University. Acta Univ. wratislav (Bot.) 29: 149 - 162. [History and content.]

SEAWARD, M. R. D. & HENDERSON, A. 1984. Lichen flora of the West Yorkshire conurbation - supplement III (1981 - 83). Naturalist, Hull 109: 61 - 65. [Recolonisation by several species is noted.]

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