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*Edited by P. D. Crittenden  
Dept. of Botany  
University of Nottingham*

## FORTHCOMING BLS FIELD MEETING

LLANDUDNO

Leaders: Peter James and Trevor Duke

17-21 October 1991

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### SUBMISSION DEADLINE

Please would intending contributors to the Winter 1991 issue of the *Bulletin* submit their copy to the editor by 4 October.

*Cover design by Ceri Leigh*

## OPERATION RALEIGH EMBRACES LICHENOLOGY

*In the beginning . . .*

For me it all began with a phone call from David Galloway: no, he wouldn't be going lichen hunting in Chile next January, would I like to go myself with Operation Raleigh? I was just starting my second year on a joint industry/university project concerned with the discovery of new bioactive compounds from lichen mycobionts (see *Bulletin*: 66) and to-date I had only collected lichens from Europe. Operation Raleigh recalled to me the adventures of my friends who participated in Raleigh in their student days, traversing the globe in search of excitement. But how could the rather gentlemanly pursuit of lichenology be combined with the more boisterous nature of OR venturers, aged 17-25, highly motivated, and looking for some serious adventure? A phone call to OR's Science and Conservation Coordinator, Jonathan Cook, assured me that it could, and I submitted my proposal form.

Five weeks later and I was accepted onto an expedition. I would spend six weeks in Chile, based for most of the time at San Rafael in Aisen province, Southern Chile, living with one of the venturer groups (Fig. 1). Fellow lichenologists, Vanessa Winchester (ex Oxford University) and Ruth Hollands (Edinburgh Botanic Garden) also participated in the expedition, giving it a strong lichenological flavour.

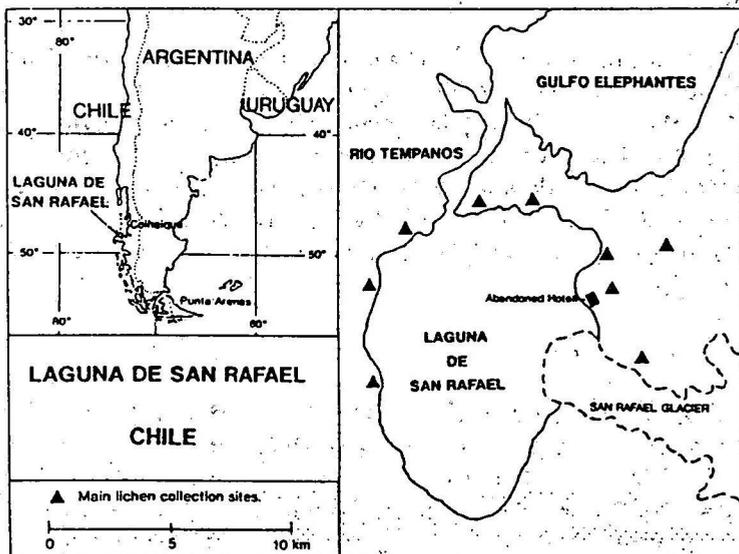


Fig.1 Location map of Laguna de San Rafael area

However, long before departure, there was the Staff Weekend. This was the chance for us to meet other staff on the expedition and, more importantly, the chance for OR to test our mettle! We all knew the rigours of a venturer selection weekend - a gruelling combination of physical and mental tests - would they do that to us? The answer was no, but when we were awoken at 5am, forced to drink champagne, and then invited to swim 500m, I knew it was going to be tough on Raleigh!

### *The journey.*

January 1991 and the adventure begins. Along with botanists Keith Bennett and Susie Lumley from Cambridge University, I flew out to join the expedition, spending one night in Santiago before reaching Coihaique, the capital for Region XI and the location of OR headquarters. Unfortunately our luggage departed on a 10 day world tour of its own. Ah well, a good excuse to sit and enjoy the beautiful weather, and to discuss my collecting plans with the venturer group I would be joining - codename The Avengers. Four very enthusiastic venturers volunteered for lichen hunting duty (one of four science projects that would run simultaneously at San Rafael). None had any previous experience of lichens and I wondered why they were so keen? It was simple: on reading part of my proposal which stated that "long arduous treks into dense jungle will be necessary", they had all known that this was the project for them. Remembering Jonathan Cook's advice that nothing is too tough for venturers and that the harder it gets the more they will enjoy it, I began to worry.

The venturers sailed on ahead to San Rafael and, once reunited with our luggage, we followed in by air. The flight in a small five seater was eventful: the pilot's only means of navigation was his knowledge of the valleys below and as it clouded over we found ourselves skimming over the tops of dense *Nothofagus* forest. Only once were we seriously worried: when the stall-indicator shrieked and we fell 500 feet vertically. Ricardo, our pilot, turned and from trembling hands offered us a cigarette. It seemed a good time to start smoking.

### *Laguna de San Rafael.*

At San Rafael we stayed in the basement of a ruined hotel. This was comparatively luxurious accommodation which was to make it fairly easy to dry lichens and set up microscopes. The hotel is situated on the foreshore of the laguna, a two kilometre strip of flat glacial moraines with densely forested mountains behind rising to over 4000m. Three kilometres south of the hotel is the San Rafael glacier, one of Chile's major tourist attractions.

The second fastest moving glacier in the world at 22m per day, it calves spectacularly into the laguna. The climate of this area is wet and cool: perfect for the proliferation of both lichens and glaciers. Average annual precipitation is close to 4000mm; average winter temperature is 5-6°C; average summer temperature is 13°C.

#### *The lichens around the hotel and shoreline.*

Vegetation on the foreshore was sparse, comprising a ground cover of moss and *Gaultheria* interspersed with occasional *Drimys winteri* and *Nothofagus* trees, with large clumps of *Berberis buxifolia* closer to the shoreline. Also conspicuous were large stands of *Gunnera* and *Blechnum* ferns. Lichen ground cover was rich, and included 12 species of *Cladonia* and three species of *Stereocaulon*, with *Cladonia laevigata* and *C. pycnoclada* forming extensive mats. Mosses were heavily overgrown by *Psoroma* and *Pannaria* species. Tree epiphytes comprised mostly crustose species, with occasional *Parmelia* and *Menegazzia* present. The *Drimys* trees were particularly rich in *Graphis*, *Phaeographis* and *Pertusaria* and the *Berberis* close to the shore was densely covered in *Nephroma*, *Hypotrachyna*, *Pseudocyphellaria* and *Parmelia* species. Although very thorny and hence unpopular with my collectors, these *Berberis* bushes were very rewarding, with up to 14 species present on some individuals.

The shoreline of the laguna was studied extensively by the venturers. Lichenology became very popular as a good excuse for a boating excursion and beach picnic. The sandy foreshore yielded many lichens including five species of *Peltigera* along with several *Psoroma* species. The rocky shore was rather disappointing, perhaps reflecting the limited variety of rock type and the relative youth of exposed surfaces. Genera present included *Caloplaca*, *Verrucaria* and *Placopsis*. More interesting were a number of small flat moraine islands close to the glacier where the sand was consolidated by *Placopsis pycnotheja*. The effect was to form a fragile raised crust over the entire surface. In view of the delicacy of this crust it was tempting to speculate that nobody had ever stepped on these islands before.

#### *The lichens in the jungle.*

Buoyed up by their success so far, and considering their apprenticeship over, the group were eager for the challenge of the mountains which were covered in barely penetrable temperate rainforest. Setting a realistic target we decided to climb a steep 1200m hill immediately behind the hotel which had been partly explored by David Galloway on a previous expedition (Fig 2). This allowed a range of vegetation types to be visited. It took a total

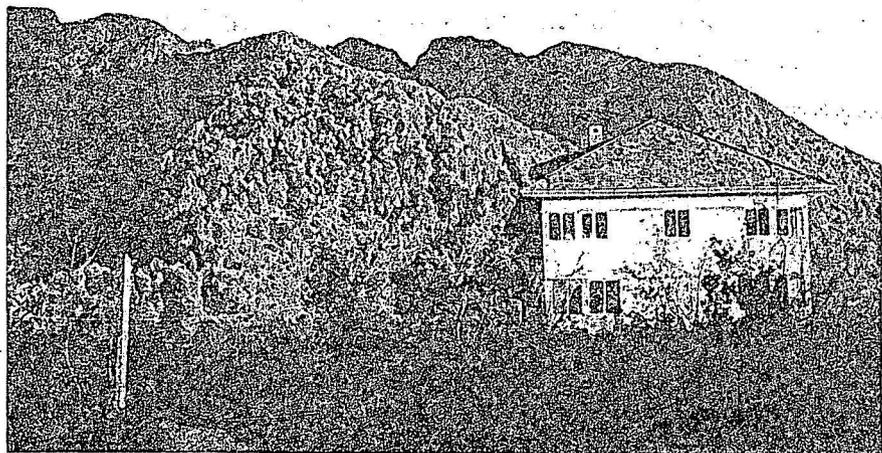


Fig.2 Abandoned hotel with the summit reached in the background

of 11 days and the near onset of hypothermia for the group to reach the summit. The task of hacking through the forest was mostly completed by the venturers who had hinted darkly that they would be better served if I remained at base camp until they had completed the job! Who was I to argue?

At low elevations, *Nothofagus*, *Podocarpus* and *Drimys* predominated, then higher up one entered an exceedingly dense belt of bamboo. Above this the jungle thinned-out slightly with huge *Nothofagus* trees, tree-ferns, vines and a host of tall shrub species growing up to the summit.

Roaming through this lichenological paradise we easily collected 150 species, mostly from the slopes above the bamboo which itself was very poor. A great many foliose genera were collected, including: *Physcia*, *Pseudocyphellaria*, *Parmelia*, *Hypotrachyna* and some very large specimens of *Platismatia* and *Leptogium*. With the exception of *Sphaerophorus*, fruticose lichens were rare; *Usnea*, *Ramalina* and *Evernia* all appeared to be absent.

Back at the "hotel", as they scraped off a week's worth of mud and leeches, the lichen hunters were greeted as conquering heroes by the other venturers. Figure 3 illustrates that muddy, malodorous but happy group. Lichens had presented a credible challenge after all.



Fig.3 The lichenologists, from left to right, Anne McHugh, Nick Ridley, Fraser Campbell, Anna Woodd, Ben Stansfield

*On the way home.*

With my 260 lichens carefully dried and water-proofed I said goodbye to the Avengers and prepared to sail north to Coihaique with my Cambridge colleagues. To my surprise and pleasure everybody had caught the lichen bug to some degree - although I did seriously question their motives when they began experimenting with dried specimens as smoking materials!

On our return to Coihaique the press of people was at first a little disconcerting but the hot showers and cold beers quickly proved the worth of civilisation. As we waited for our flight back to the UK, Ruth Holland's arrived, ready to be deployed into the field for the second half of the expedition. Looking clean and fresh, unmarked by the ravages of mosquitos and leeches, she was the very opposite to us but we knew it wouldn't last. Raleigh adventure demanded that!

I must express my sincere thanks to all the staff and venturers involved in Expedition 91A for making my stay in Chile both possible and memorable. Special thanks go to Jonathan Cook and Jane Hunter at Operation Raleigh Headquarters in London.

Fraser Campbell

## JANUARY MEETINGS 1991

### Booksale and buffet

Over 30 people attended this event in the convivial surroundings of the rooms of the Royal Entomological Society of London. Again, the standard of cuisine provided by Felicity Priest was high. A notable departure from the norm was to limit the sale of books to those of a lichenological nature. A good selection of books was nonetheless available and Mark Seaward and Frank Brightman with their ready wit and sales talk managed to realise a net gain of £90.75 for the Society. A good selection of slides was shown from a variety of members, depicting field meetings in both Britain and abroad. A truly mouth-watering selection from Ireland was shown by the President to entice members to attend the forthcoming meeting in Co Mayo and Co Donegal.

### 1991 Annual General Meeting

In keeping with *Bulletin 66* the minutes are circulated as a separate sheet.

### Exhibitions

A high standard of exhibits were present this year, and as is so often the case, there was insufficient time to study these in as much depth as one would have liked. In addition to selected exhibits mentioned below, there were a number of items on sale, including Society sweatshirts, ties etc. and cards.

#### Lichens and Churchyards

An impressive display was mounted by Tom Chester providing excellent illustrative material to back up his lecture (see pages 8 & 17). A range of habitats were depicted, including photographs of selected lichens typical of particular habitats.

#### The Rose Collecting Technique

This novel technique involves painting the surface of a moistened lichen with a water-based glue and then placing a stiff card over it. When the glue has set, (so the theory goes!) peel off the card with the lichen attached and place on another card to which a solvent-based glue has been applied. Once this has set, all that remains to be done is to remove the first card with warm water. Theoretically the lichen will be on the second card, the right way up!

More trials are needed - ideas to Francis Rose please.

### ***Usnea wirthii* Clerc - a new record**

Newly discovered by Howard Fox from Lough Scur, Co. Leitrim, Ireland. It contains psoromic acid and the inner part of the medulla is pale yellow. Otherwise known in S W England and Wales.

### ***Cetraria* night and day**

This skin care cream is claimed to provide a balanced 24 hr skin care treatment. Exhibited by the President. "Created from biologically active natural ingredients, these creams will retard premature signs of aging and aid regeneration of skin cells. They contain natural oils and extracts of Iceland Moss (*Cetraria islandica*)."

### **Embroidered lichens**

This truly eye-catching innovative technique was shown by Helen Bamber. It involves machine embroidery using chiffon and muslin with different coloured threads and cottons between different layers.

### **Archives - examples of some material**

A range of material, provided by Dennis Brown, was on display including photographs of lichenologists through the ages.

Other exhibits related to such diverse topics as neglected habitats, (e.g. lichens on cinnamon bark) and the role of lichen-eating snails in the Negev Desert which may add significant nitrogen to desert ecosystems.

### **Lectures**

John Raven began the afternoon lecture meeting with a talk about carbon assimilation in *Lichina pygmaea*. This lichen grows in alga-free sites in the high-tide zone of the rocky shore, contains the cyanobacterium *Calothrix* as the photobiont and has a stratified type of thallus construction. Rates of carbon fixation in wet thalli in air are similar to those of thalli submerged in sea water but these are lower than those of rocky shore macroalgae in the same tidal zone such as *Pelvetia canaliculata* and *Fucus spiralis*. However, *Lichina* resembles these cohabiting algae in that its photobiont has a high affinity for both CO<sub>2</sub> and HCO<sub>3</sub><sup>-</sup>. In the macroalgae plastids are most abundant in the epidermal cells and consequently the diffusion path length

for CO<sub>2</sub> is short. In *L. pygmaea* the outer surface of the *Calothrix* layer is c.20µm beneath the thallus surface and represents a comparatively long diffusion path for CO<sub>2</sub>. Rates of carbon assimilation at low temperatures (5°C) could probably be satisfied by diffusion of CO<sub>2</sub> and HCO<sub>3</sub><sup>-</sup> from the thallus surface but at higher temperatures (15°C) there is evidence that an extracellular carbonic anhydrase, which interconverts CO<sub>2</sub> and HCO<sub>3</sub><sup>-</sup>, promotes movement of CO<sub>2</sub> along this long diffusion path to the *Calothrix*. It is not known whether the enzyme is a product of the fungus or photobiont.

In the second lecture Roy Alexander described his work on soil encrusting lichens in the badlands of south east Spain. This is a poorly vegetated landscape that appears to have been extensively eroded by surface run-off. South-facing slopes are steep, actively eroding and largely unvegetated while the gentle north-facing slopes are more stable and support a cover of crustose lichens, principally species of *Diplochistes*, *Squamarina*, *Fulgensia* (white crusts), *Toninia*, *Collema*, *Psora* and *Catapyrenium* (black crusts) together with free-living cyanobacteria. The white crusts appear to have a distinct preference for north-facing slopes while the black crusts are more widely distributed. These observations were confirmed by the results of a quantitative analysis of lichen distribution in relation to aspect and slope. Furthermore, black crusts are more abundant on the banks of young drainage gullies than they are on banks of older gullies suggesting that they may be pioneer species which later become replaced by white crusts under more stable conditions. Do the rich lichen communities develop on the north-facing slopes because here the soils were more stable, or does the presence of lichen crusts reduce or prevent soil erosion? Experiments were carried out in which simulated rainfall was applied to areas of ground with or without a stabilising crust of lichens. The results suggest that lichens reduce water penetration into soil, increase surface run-off, but reduce the quantity of sediment removed in the run-off. A lichen cover of 20% may be a critical value: less than 20% cover probably offers little protection from erosive forces. Roy concluded that the protective effect of lichen crusts in this arid region may have a meso-scale effect on landscape characteristics by encouraging the development of asymmetric gullies.

Tom Chester then talked about the importance of churchyards as lichen habitats after which Sandy O'Dare reported on a number of lichen-rich limestone woodlands in County Fermanagh. Tom and Sandy both kindly agreed to rework the texts of their talks into articles which appear elsewhere in this issue (pages 17 & 22 respectively).

Next, Peter Crittenden asked "Why do some lichens fix nitrogen?" In general, lichens that contain cyanobacteria and fix N<sub>2</sub> have higher

concentrations of N in their thalli than non-fixing species. He suggested that perhaps lichen fungi that associate with cyanobacteria have a greater requirement for N than mycobionts that associate with non-N<sub>2</sub>-fixing green algae. Mycobionts from *Cladonia stellaris*, *Stereocaulon paschale* (N<sub>2</sub>-fixing) and *Xanthoria parietina* were isolated into pure culture either from thallus fragments or spores. Growth rates and nitrogen uptake rates were then measured in liquid batch culture at different levels of N ranging from 0.135 to 148 ppm N as NH<sub>4</sub>NO<sub>3</sub>. Each of the three species responded to N supply but there were no marked differences between species in either relative growth rate or growth response pattern. The N concentration of mycelium was positively correlated with N supply. However, in *S. paschale* and *C. stellaris*, which are species from N poor environments, the lowest N concentrations observed in the cultured mycobionts were found to agree closely with the highest N levels measured in the whole lichen suggesting that growth in these species in nature may be tightly coupled to N supply. It follows that the lowest N concentration in *S. paschale* mycobiont was greater than the lowest value in *C. stellaris*, in line with the original hypothesis. *Xanthoria parietina* is a lichen from comparatively N rich habitats and the highest thallus N concentrations observed in this species fell in the middle of the range of mycelium concentrations observed in culture.

David Richardson ended the lecture meeting by giving a brief introduction to Clare Island and Glenveagh, the venues for the forthcoming BLS summer field meeting. We were treated to slides of splendend coastal scenery and inland landscapes. The coastal areas are particularly botanically rich and include fascinating seashore habitats. David Richardson and Mark Seaward have already conducted a preliminary survey of the Clare Island area but the very lichen rich habitats in the Glenveagh National Park remain little studied.

William Purvis and Peter Crittenden

## SECRETARY'S REPORT FOR 1990

1990 has been a year of change and of new opportunities for the Society. We have a new President, Vice-President, Bulletin Editor, a new position, that of Publicity Officer, and a new Secretary. The legacy from the Mrs A G Side estate, totalling some £23,000, will be very shortly credited to the Society which is currently in a strong financial position. Partly in recognition of this the *Lichenologist* will be sent to a specified lichenologist in countries where normal payment is difficult, in return for periodic news items for the *Bulletin*.

On Friday 5 January a booksale and buffet was held in the Meeting Room of the Royal Entomological Society of London, and on Saturday 6 January the Annual General meeting was held in the Palaeontology Demonstration Room, The Natural History Museum. In the afternoon there was an opportunity for members to discover what goes on 'behind the scenes' in the Lichen Section.

Dr Coppins attended the International Mycological Association (IMA) at the 4th International Mycological Congress, Regensburg, as representative of the BLS where Professor Hawksworth was duly elected President of the IMA. This is a prestigious office; the Society extends its congratulations and also thanks for his help during the past 13 years as Secretary General. The BLS will become an Affiliated Organisation of IMA, paying an annual subscription of \$60.

Council met on three occasions in January, April and September. Three Society field meetings were held in Isle of Man, Gower Peninsular and Derbyshire. Peter Earland-Bennett, Alan Orange, Oliver Gilbert and Brian Fox are thanked for leading these events. Field meetings continue to be a popular activity of the Society - it was especially gratifying that one attracted three members from abroad. Four issues of the *Lichenologist* amounting to 417 pages were produced under the Senior Editorship of Dr Brown, and two issues of the *Bulletin* totalling 94 pages by Dr Crittenden. The Conservation Committee has been active, particularly with regard to the survey of coastal lichens. This is partly supported by grants from the Nature Conservancy Council and World Wildlife Fund. The *Lichen Flora of Great Britain and Ireland* was delivered yesterday to the publishers. Publication is anticipated before the end of 1991. It has been a considerable undertaking in such a short time but thanks to the contributions of many members its production is nearly concluded.

Our Publicity Officer prepared and circulated a questionnaire to BLS members. In response to this, Council approved the expenditure of £2400 towards the cost of a variety of items on sale today.

It is impossible to thank all BLS members for their varied contributions to the Society. However, the Society is deeply indebted to Dr Swinscow for his sterling effort as honorary auditor. Also, special mention must be made to Mr P W James and Professor D L Hawksworth. Peter James, a leading light in the formation of the Society, retired from the NHM on the occasion of his 60th Birthday and the third issue of the *Lichenologist* was dedicated as a Festschrift to him. Professor Hawksworth wishes to stand down as an Editor of the *Lichenologist* and also no longer wishes to act as a referee. He has been closely involved in the forthcoming *Lichen Flora of Great Britain and Ireland*. We owe David a great deal for his contributions to the Society.

There are currently 567 members and 6 junior associates. 31 new members joined the Society during 1991.

William Purvis  
(5 January 1991)

## LICHENOLOGIA

At the turn of the year, some members were excited to see a newspaper headline to an article on the New Year's Honours List that read "Life Peerage for P James"; but it turned out to be another P James with a different middle initial. At the Annual General Meeting in January, however, P W J was elected an honorary member of the British Lichen Society with acclaim, and presented with a handsome, specially bound copy of the Festschrift part of the *Lichenologist* that was published last year to mark the occasion of his retirement from the British Museum (Natural History).

Also at the AGM the mystery of the new cover of the *Bulletin* was cleared up. New designs for covers are fashionable just now. The journal of the Mycological Society shows what looks like a spore print of a toadstool, but on a closer look it doesn't look quite right; for one thing, the spores appear to be square. A note inside the cover explains that a real toadstool was not used; the spore print was computer-simulated. The cover of the Lichen Society Bulletin looks as if the title and other wording has been printed on a piece of brown mottled wall-paper; but if it is turned upside down, the

secret is revealed. Viewed through half-closed eyes the scyphi of some indeterminate *Cladonia* species, seen from above and slightly blurred, appears. It is not thought that a computer was involved.

Prospects for useful and interesting field work appear to be better than ever in 1991. As well as the programme of field excursions and other events organised by the Society and courses at Field Centres of various kinds all over the place, more or less informal groups will be searching and listing in many parts of the country. As usual the New Forest will be explored, and there will be lichen days out in the West Country. A small Norfolk group will be looking at the Breckland, now threatened by overgrazing in some parts and undergrazing in others, as well as the effects of afforestation. The Kent Field Club will be arranging at least half a dozen meetings for lichenologists. To some extent these arose out of an interesting invention of the Club: the Wall Tour. For twenty years the Club devoted a day each year to the study of the vegetation of walls; on these wall tours vascular plants, bryophytes and lichens were recorded. Ideally the tours were conducted on foot; this is easily possible in towns like Sevenoaks, Tunbridge Wells and Maidstone, and further east where there are villages with ragstone walls. In other parts it becomes necessary to visit successions of churches, using motor cars for transport. A participant years ago was heard to say "I've heard of pub crawls, but church crawls . . .", breaking off without further comment. To observe and record all groups of plants is a formidable task, and now the club is concentrating on lichens. Of course, church crawls will be taking place in other parts of the country as well this year.

Farther afield, snails of the genus *Euchondrus* are in the news again. These animals graze on limestone boulders in the Negev desert. Pedologists call them "rock eating" but actually they abrade the stone in order to be able to feed on lichenised fungi that grow just below the surface. In doing so they create a considerable amount of rock dust, estimated at about 100 g per square metre per year, the same as the quantity of dust deposited by the wind. It accumulates in crevices under the boulders where conditions are moist from the precipitation of dew at night, and thus forms a skeletal soil to which humus is contributed by the excreta of the snails. The lichens are able to fix nitrogen from the air; a recent estimate is that more than 25 mg per square metre per year of nitrogen is transferred from the lichens to the soil by the snails. The shrubby flowering plants that grow in the shelter of the boulders with their roots in the moist soil beneath them would suffer from mineral deficiency were it not for this.

Can a cash price realistically be put on a locality that is noteworthy because it contains a very good stand (possibly the best known) of an uncommon

lichen? A Swedish conservation organisation believes that it can. The lichen is *Evernia divaricata*, and the locality in which it is flourishing in Hälsingland is threatened by the construction of a new dam and power station. The conservationists are suing the power company for an indemnity of ten million kroner in case the lichens are destroyed by these developments. Engineers acting for the company say there is no danger of this happening. The basis of the conservationists' estimate of the cash value of the site is that the sum claimed would be sufficient to purchase and protect a similar locality with *E. divaricata* elsewhere.

CUDBEAR

### CORRESPONDING MEMBERS

Council has recently introduced a new category of membership - that of Corresponding Member. The names of prospective members for whom payment by normal means is difficult, are put forward to Council for consideration. The Society will pay the subscriptions for Corresponding Members for three years to enable them to receive copies of the Society's publications (*Lichenologist* and *Bulletin*). In return, we would be grateful for periodic updates (at least yearly) on items of lichenological interest in their country. These will be published in the *Bulletin*.

Current corresponding members are:-

Dr K Bartók, Centrul de Cercetari Biologice, Str. Republicii 48, 3400 Cluj-Napoca, ROMANIA.

Professor Z Černohorský, Department of Botany, Charles University, Benatska 2, Praha 2, CZECHOSLAVKIA.

Dr W Faltynowicz, Katedra Ekologii Roślin, i Ochrony Przyrody, Uniwersytet Gdański, Czołgistów 46, 81-378 Gdynia, POLAND.

Dr E Lisická, Leningradska 15, 900-31 Stupava 1250, CZECHOSLOVAKIA.

Dr Tiina Randlane, Laboratory of Bioindication, Tartu University, 202 400 Lai Street 38, Tartu, Estonian SSR, USSR.

Professor R Schubert, Geobotanik und Botanischer Garten, Martin-Luther-Universität, Neuwerk 21, 4020 Halle (Saale), GERMANY.

B Wagner, Druzstevni 31, 41201 Litomerice, CZECHOSLOVAKIA.

William Purvis

## LETTERS FROM CORRESPONDING MEMBERS

### Items of lichenological interest in Romania

I am sorry to report that I am the only lichenologist working in Romania. I work in the Ecological Laboratory of the Biological Research Institute in Cluj, an old university city in the western part of the country. This year there are hopes to increase our ranks with two younger lichenologists.

Last year (1990) I spent a great deal of my time using lichens in pollution monitoring around the industrial centre of Dej (Cluj county, Transylvania) which has many pollution sources (eg. cellulose plants and refractory products). Using physiological tests (eg. respiration, chlorophyll and heavy metal content) on *Xanthoria parietina* I have mapped the direction, the quantity and the toxicity of the released pollutants. Some of these results are already in press. I have also been concerned about radioactive pollution. In collaboration with the Institute of Public Hygiene's Radiation Laboratory in Cluj, I have studied changes in the caesium and strontium concentrations in lichens following the Chernobyl accident of 1986: we are able to compare post-Chernobyl lichens with lichens sampled in 1975 in the same area. Some results have already been published (*Revue Roumaine de Biologie, ser. Biol. Veget.* (1990) 35 (1): 61-65), but our research still continues.

During 1991 I will begin a taxonomic and phytogeographic study of the Stictaceae in Romania. At the same time I have become engaged in the 'Lichen mapping in Europe' project with two species. We are, however, at the beginning of the year, and our ideas have not yet crystallized; I shall inform you later about my projects.

In Romania, there are many beautiful and extensive unexplored areas with natural ecosystems. I would be very pleased to hear from lichenologists in your country interested in surveys similar to my own and at the same time I would like to know and see the lichens from the British Isles.

Dr Katalin Bartók  
(research worker)  
Biological Research Institute  
Str. Republicii 48  
3400 Cluj-Napoca  
Romania

## News from Czechoslovakia

Czech and Slovak lichenologists, as well as bryologists, are not numerous. That was the reason why on 29 February they united to form The Bryological and Lichenological Section of the Czechoslovak Botanical Society (CSBS). Its chairman is V Pospíšil, the vice-chairman I Pišút, and the secretary I Novotný, (Botany Dept. of Moravian Museum, Preslova 1, CS-602 00 Brno, Czechoslovakia): The function is (1) to organise once a year Bryological and Lichenological Days (with lectures, discussions and informal meetings); (2) to participate in floristic courses of the CSBS and/or its regional branches (bryo-lichenological excursions and determination of collected plants); and (3) to publish twice a year, in Czech and Slovak, the newsletter entitled *Bryonora* (editors: Z Soldán, bryology; J Liška, lichenology). The section counts 40 national members and 14 collaborators from abroad. Bryology and lichenology are often inseparable in the activities of our section. Nevertheless, I shall try to emphasize the lichenological items.

During June 4-8, 1990 the 3rd Bryological and Lichenological Days took place (15 participants) in the town of Třebíč, W. Moravia, on the occasion of the 100th birthday anniversary of Jindřich Suza and 150th anniversary of Adolf Oborny. Of these two botanists only the first studied lichens. J Suza was born on Jan 12, 1890, in Třebíč. His first position was a teacher in elementary schools. After the First World War he studied at the newly founded Masaryk University in Brno where he was the Assistant of Professor J Podpěra. He got his RNDr. there in 1924 and later became Docent (Assistant Professor) of Systematic Botany. From 1932 he worked at the Charles University in Prague where he became Professor of Cryptogamic Botany in 1936. He died on Nov 11, 1951. J Suza contributed substantially to the knowledge of our lichen flora, mainly that of Moravia and Slovakia. He also studied plants (eg. liverworts) and fungi. Finally he delimited an independent phytogeographical unit called Praebohemium. He built herbaria at universities in Brno and Prague and edited lichen exsiccata.

In Třebíč, I Pišút, E Lisická, A Lackovičová and others lectured on Suza's life and his work. The participants also visited Suza's grave in the Třebíč churchyard and laid a bunch of flowers on it. Finally, under A Vězda's leadership, they undertook lichenological excursions to Suza's study locality near Vlaidslav, serpentine rocks and soils near Mohelno and conglomerates in the valley of the Rokytná River.

I have based the above summary on several different sources of information, mainly the newsletter *Bryonora* 5, Dec 1990. In this issue (p.10) the reader will also find, under "Life of Societies", information about the British Lichen Society. J Liška describes there (in Czech) a rich history of this "most important national lichen society (and the first one all over the world occupying itself exclusively with lichens)" since 1958 till to-day. He shows there the influence this society has had on the rapid development of our *scientia amabilis* not only in the UK, but also on an international scale.

According to *Bryonora* 4 (p.7) and 5 (p.6), the 1990 field meetings and excursions were as follows: 4-6 May, lichenological week-end of the N-Bohemian Branch of the CSBS in the České Středohoří Hills (Böhmisches Mittelgebirge, leader J Liška, 20 participants); 4-8 June, Třebíč (see above); 7-14 July, Hlinsko, floristic course of the CSBS (two bryo-lichenological excursions, leaders M Zmrhalová, Z Soldán and J Liška).

Finally I must give at least three lichenological items from the contents of the most recent *Bryonora*. 1) Birthdays: A Vězda (born Nov 25, 1920) and Z Černohorský (Dec 27, 1910), who celebrated in 1990 their 70th and 80th birthdays respectively. A congratulatory article on the first lichenologist was written by I Pišút, and on the second by J Liška (see also *Preslia* 62 (4) 1990). 2) Czechoslovak lichenological bibliography III. 3) Annotated list of lichenological journals and newsletters (2 and 3 compiled by J Liska).

Professor Zdeněk Černohorský  
Department of Botany  
Charles University  
Benatska 2  
Praha 2  
Czechoslovakia

## CHURCHYARD LICHEN SURVEY

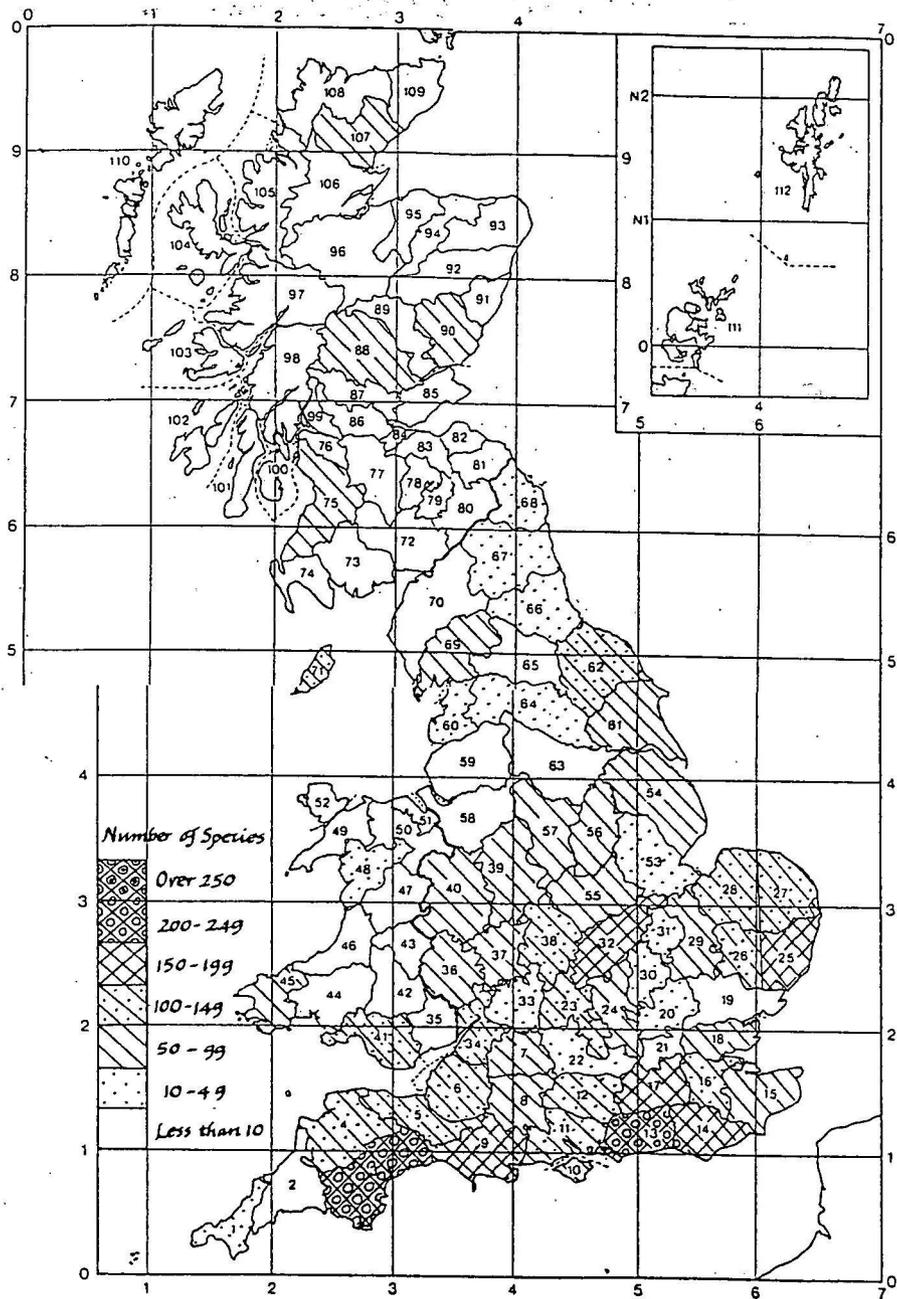
### *The importance of churchyards as a habitat*

In lowland Britain where outcrops of rock are absent, the churchyard is an "essential landscape" [1] for lichens. This is due to a unique combination of characteristics. To begin with, a church and its graves like an ancient woodland combine continuity and change, remaining relatively undisturbed while providing ever new surfaces for colonization. The building itself is often the tallest on the skyline and this may assist initial colonization from spores borne by wind or birds. Most churchyards contain a much greater variety of stone types than are commonly found in natural exposures. In a single yard, there may be a dozen or more saxicolous substrata, wide ranging in chemical content, pH, texture and water-bearing capacity. The structures created by these stones are no less complex. There are surfaces at almost every angle from the vertical to the horizontal, and facing almost every point of the compass. This immense variety of slope and aspect, when considered in relation to the corresponding variability of exposure to the elements, provides a wealth of ecological niches, each with its corresponding assemblage of species. There are other substrata too: medieval stained glass, a range of metal and wooden structures, and, of course, trees. The traditional yew, while never noticeably rich, may be colonized by the rare *Opegrapha prosodea*. And it is not just the diversity which is important. This is a condensed landscape and it is the close proximity of these microhabitats one to another and the inter-relationships between them which add immeasurably to the richness. Curious things happen when, for example, a calcareous headstone has an acid base or mortar washes down an acid wall.

Much still depends on how a site is managed. The stonework may be cleaned or left to the ravages of ivy. Neither fastidiousness nor neglect serves the lichen well. At best, the churchyard remains a spray-free oasis in what may well be an agro-chemical landscape. A site cannot be assessed out of context. Its position relative to the surrounding environment is invariably a telling factor - whether it is sheltered by trees, adjacent to a farmyard, or next to a busy road. And its geographical position on a national scale is no less significant. The maritime influence is noticeably strong and may penetrate some considerable way inland.

### *Progress of the National Checklist*

While, in the past year, I have visited graveyards in 20 vice-counties, I have relied mainly on colleagues to send me records and I am most grateful for



Churchyard Lichen Records

their co-operation. The map illustrates the current situation and, at this stage, indicates the vice-counties where colleagues are especially active. It would look a little different if, instead of species, it showed the number of sites visited. Most of the Surrey list comes from a single site, Mickleham! Some time has also been spent consulting the relevant literature. In Leighton's Flora [2], I discovered that *Lecanora circinata* (*Aspicilia subcircinata*) was found at Grantchester by Rev Relhan in 1783, making it possibly the earliest churchyard record. Herbarium specimens provide another useful source. In the Natural History Museum, I came across a specimen determined as *Collema undulatum* var. *granulosum* and collected by Pauline Topham from the top of a chest-tomb at Chitterne in Wiltshire in 1978. A month later, I visited the site to find the colony still thriving!

In a previous article (*Bulletin* 66: 31), I outlined the kinds of list being kept. The main list now totals 487 species, with a further dozen minor variants such as the citrine forms of *Candelariella*, as well as 34 lichenicolous fungi. Having recently added a hard card to my computer, I can now run BIORECS [3], a data-base which enables me to put on screen the current mapping card and feed in site records simply by clicking the mouse. In its present form BIORECS operates best at the vice-county level. A revised version will create national distribution maps, while a linking program is planned to make it compatible with the NCC's more sophisticated ADVANCED REVELATION.

When colleagues send me their lists, they are put into A4 ring-binders in vice-county order. A master card is kept for each vice-county, on which corticolous and lignicolous species are distinguished by putting a broken line beneath them. It is difficult to know what to do with individual site lists. Don Smith has sent me 100 computer printouts for VC 62, while Francis Rose has a similar number of cards for Sussex. Perhaps, like the BSBI, we need to assess churchyards and retain site records only for the top 10%.

### *Survey Techniques*

When carrying out a survey, I use a double-sided A4 survey sheet. It lists 150 species and there is just enough space beside each for abbreviated details of substratum, position, aspect, and slope, with room on the back for further notes. The age of a tombstone may be worth noting, and the precise location for rare or problematic species is essential. So often have I returned to a site and failed to re-find a lichen I wanted to look at again. A list such as this is quicker to fill in than a mapping card and has room for essential extra details. It is also much less likely that a species will be overlooked. I always check through the sheet before leaving a site and it is amazing how often an obvious species has been omitted. On the debit side, a home-grown list works less well away from home terrain and inevitably reflects the blind spots of its designer. In using any list, there is

also a tendency to focus primarily on the presence of a species rather than on other aspects of its ecology. One knows where it characteristically occurs, seeks it out and ticks it off. In doing so, especially when time is at a premium, one may miss the atypical species and the atypical habitat. Significant discovery is sometimes better promoted by an open mind and an abundance of time.

With or without a list, learning where to look is almost as important as learning how to identify and both are best learnt by being apprentice to an expert. To me, a site consists of three ever-decreasing circles: the boundary wall or fence if there is one, the graveyard, and the church itself. Really ancient boundary walls tend to be circular in plan and often coincide with a parish or county boundary; they can be very rich in species. All the gravestones require examination - calcareous and acid, chest-tombs and headstones, the newer as well as the old. The nutrient-enriched tops, the damper recesses and the granite chippings all provide additional niches. And any survey would be incomplete without a thorough look at all aspects of the church. The north wall typically carries shade-loving communities: *Lepraria* and *Leproloma* spp, *Dirina* and *Psilolechia lucida*. Many church windows have a metal protective grille and certain distinctive species may colonize the run-off. Iron-associated lichens include *Arthonia lapidicola*, *Lecanora epanora* and *Scoliciosporum umbrinum*, while, where there is copper, *Psilolechia leprosa* is turning up with increasing frequency. At Helmdon in Northamptonshire, the copper roof is completely hidden behind a high parapet and it was only recently that I noticed a pale-green stain on either side of a drain-pipe on the north wall and found this lichen fruiting beautifully under the string-course. The fact that the species has been overlooked for so long seems to me to show that we perceive with our brains as much as with our eyes! In other words, we see what we know and therefore expect to see. In examining walls, one is inclined, increasingly with age, to focus merely at a comfortable eye-level. Ideally, of course, a church should be searched from base to tower-top. For obvious reasons, the upper parts are as neglected as the canopies of trees. It is occasionally possible to use external scaffolding (churches seem increasingly to be under repair) or to gain access from within. As I suffer from vertigo, I resort instead to venturing out after gales in the hope that precious gifts have been delivered to ground-level!

This brings me to the vexed question of collection. Of one thing I am absolutely sure: the only person who should ever use a hammer and chisel in a churchyard is a stone-mason! Unless presented with gifts in the wake of a storm, the most one can do is to scrape off enough crumbs for a TLC or squash without damaging the substratum. I always carry a small container of water alongside my chemicals because dry crumbs tend to fly! Some people use sticky tape such as Scotch Magic [4], while Francis Rose [5] suggests a combination of water-based and solvent-based glues to ensure that these choice morsels finish the right way-up!

## *The way forward*

If surveys are to be of value to members, it is essential that species are properly identified. The eagerly-awaited Flora will be a great help, as I am sure will Jack Laundon's forthcoming Museum booklet. If like Oliver (Twist not Gilbert) I could ask for more, I would suggest a reference collection of slides and herbarium specimens of the more confusing crusts and further workshops on their identification. And the habitat would be ideal for a third Claire Dalby wallchart!

The Society has a role to play in raising the awareness both of those already involved in churchyard conservation but from other perspectives and of the public in general. A symposium at Bristol set up by David Hill in November 1990 was attended by botanists, geologists, family historians and stonemasons as well as lichenologists and a series of recommendations for gravestone conservation were agreed upon. A new edition of the Living Churchyard pack [6] contains an updated version of the sheet "Lichens & Conservation" produced by the BLS in 1984. The Church & Conservation Project is to hold a conference [6] at Stoneleigh in September, involving all interested groups including County Wildlife Trust and Church representatives. Frank Dobson, Jack Laundon and I will attend.

The churchyard, as well as being an essential landscape for lichens is equally an essential landscape for lichenologists, especially the beginner. The new National Curriculum for schools encourages practical outdoor projects at all levels. This should give us the incentive to produce suitable educational resource materials and, as a by-product, encourage more young people to join our society. We can all play a part in conveying the right messages. Let us go forth and preach the gospel!

And some fell on stony ground and must not be allowed to wither!

### *References and notes*

1. Plath, S (1981) "The November Graveyard". *Collected Poems*. Faber p56.
2. Leighton, W A (1879) *The Lichen Flora of Great Britain*. Ed.3. Shrewsbury, p179.
3. Details from: S Coker, Mountain, Clarbeston Road, Haverfordwest, Dyfed SA63 4SG.
4. Alstrup, V (1991) Collect with a Tape. *Graphis Scripta* 3, (2) 77-78.
5. Rose, F p33 this issue.
6. Details from: E Dennis, Arthur Rank Centre, National Agricultural Centre, Stoneleigh, Kenilworth, Warwickshire CV8 2LZ.

Tom Chester

## SOME WOODLANDS IN CO. FERMANAGH, NORTHERN IRELAND

Co Fermanagh is the most western county of Northern Ireland, between the Irish counties of Donegal in the north and Leitrim in the south. It is an area dominated by lakes and islands, with limestone and sandstone high ground and a moist, Atlantic climate.

The Department of the Environment (NI) Conservation Branch, commissioned a series of lichen surveys for some of the Nature Reserves in the county, largely prompted by some initial work by Ray Woods. The sites were mostly woodland: ash woods with willow and hazel on the limestone cliffs and gorge at Marble Arch and Hanging Rock NNRs; parkland and woods at Florence Court (National Trust and Forest Nature Reserve); mixed oak, birch, rowan, hazel and willow at Correl Glen NNR; limestone pavement with well-developed hazel scrub at Crossmurrin NNR.

Apart from the Killarney Woods in the south-west of Ireland and the survey of Derryclare Wood, Connemara (Folan and Mitchell 1970), there have been very few detailed woodland surveys made in Ireland. The National Trust have made a valuable lichen survey at Crom Castle, Co. Fermanagh, but other parkland sites still remain to be investigated. The interesting results from these present surveys are therefore an indication of the vast amount of exploration waiting to be made in the whole of Ireland.

**Correl Glen:** the lowest part of this reserve is a shaded gorge cut by the Sillees River which drains into the Carrick Lough at the eastern end of the Reserve. This part is dominated by a rich bryophyte flora on the oaks, but on the upper slopes, old hazel and rowan coppice support a species-rich crustose lichen flora including *Pyrenula occidentalis* (frequent) with *Thelotrema lepadinum*, *Arthopyrenia carneobrunneola*, *A. cinereopruinosa*, *A. nitescens*, *Arthonia cinnabarina*, *Pertusaria leioplaca* and *Mycomicrothelia confusa*.

A series of low limestone scarps, with intervening dip slopes of heather, supported remnants of semi-natural woodland. Old birch was colonised by a large cushion of moss over which grew prolific colonies of the Tunbridge filmy fern, *Hymenophyllum tunbrigense* while higher up the trunk, beautifully fertile material of *Sphaerophorus melanocarpus* was seen. Also here was *Gyalidiopsis muscicola* (new to Ireland) and abundant *Micarea cinerea*. *Parmelia crinita*, *P. reticulata* and *P. sinuosa* were found on old willows, together with *Dimerella lutea*, *Leptogium lichenoides* and *Parmeliella jamesii*. The hazels supported a fine assemblage of cyanobacterial species, including *Leptogium cyanescens*, *Nephroma laevigatum*, *N. parile*, *Pannaria rubiginosa*, *Sticta limbata* and *S. sylvatica*.

The north-facing limestone scarp was quite shaded and supported mainly *Lepraria* species, but *Lecania hutchinsiae*, *Belonia nidarosiensis* and *Opegrapha mougeotii* were also recorded.

The eastern end of the Reserve is a low-lying, wet area and showed evidence of long-abandoned past management from tumbled field walls. This had created gladed areas in this sheltered, shaded and humid site, with old willows, rowans and hazels. The trunks and stems of these trees were thickly covered with bryophytes over which grew abundant foliose cyanobacterial species of *Leptogium*, *Pannaria*, *Parmeliella*, *Peltigera*, *Nephroma* and *Sticta*, together with some beautifully developed large-lobed *Lobaria scrobiculata* on hazel and rowan, altogether a fine and spectacular assemblage.

**Florence Court:** the Park and demesne date from the early 18th century, created by the Earl of Enniskillen. However, significant areas of 'natural woodland' were left as landscape features, and from these valuable reservoirs, the lichen flora has survived and colonised the planted trees and woodlands. *Lobaria pulmonaria* is frequent throughout the demesne, even on quite young ash, especially in the gladed meadow edges, together with *L. scrobiculata*, *Catillaria atropurpurea*, *Parmeliella jamesii* and *Parmelia crinita*. *Lobaria virens*, surprisingly uncommon in Ireland, was recorded on an old ash with *Catillaria sphaeroides*, *Pannaria rubiginosa* and *Sticta sylvatica*.

The parkland oaks (about 250 years old) still retain quite dense canopies, and the prevailing Atlantic climate here has delayed the development of the more characteristic ancient parkland flora, seen further east in Fermanagh at Crom Castle. An old healthy elm in the Park, though, was found to have a fine lichen flora with *Bacidia rubella* (frequent), *Collema subflaccidum*, *Gyalecta derivata*, *G. truncigena*, *Lecania cyrtellina* and *Lobaria pulmonaria*.

The most surprising finds at Florence Court were on an old, standing, decorticated trunk of Scot's pine, growing near the upper edge of the demesne, at about 270m. On this trunk were recorded *Calicium glaucellum*, *Micarea misella*, *Mycoblastis sterilis*, *Pertusaria pupillaris*, *Xylographa trunciseda* and *X. vitiligo*, all new Vice County records, some new to Ireland.

**Marble Arch and Hanging Rock:** these sites are all on Carboniferous Limestone and are dominated by wet, western ash woodlands, with hazel and willow. Marble Arch, a limestone gorge, has woodland that supports an extremely rich lichen flora, with abundant *Lobaria pulmonaria*, *Pannaria*, *Parmeliella* and *Sticta* species, together with *Strangospora ochrophora*, *Megalospora tuberculosa*, *Arthopyrenia viridescens*, *Graphina*

*ruiziana* and *Megalaria grossa*. Growing among mosses on old sallow was *Lecidea epizanthoidiza* (*L. efflorescens*), PD+ red, the first record for the British Isles, previously known from Scandinavia and Central Europe and confined to ancient, wet woodlands. Also of interest here were two lichenicolous parasites of *Thelotrema lepadinum*: *Arthonia thelotrematis* and *Opegrapha thelotrematis*, both new to Ireland.

At Hanging Rock, past management has fragmented the area of lichen interest in the remaining ash woodlands. However, the site was not without interest, the most significant finds being *Gomphillus calycioides* on ash, and *Enterographa elaborata*, also on ash on the upper slopes of tumbled block scree below the limestone scarp face. This rare species has not been recorded in the British Isles this century, although there are more recent records from Denmark and one from France.

**Crossmurrin:** an exposed limestone pavement and grassland site, with some areas of hazel scrub. The hard-weathering rock supported a typical lichen flora of exposed limestone in upland sites. Growing directly on the stone, 27 species were recorded, including *Petractis clausa*, *Gyalecta jenensis*, *Hymenelia prevostii*, *Solenopsora candicans* and *Thelidium incavatum*, with *Lempholemma botryosum* in crevices and seepage tracks. The terricolous communities were fairly interesting with *Peltigera leucophlebia* and *Psora lurida* being recorded. The acidic boulder erratics at the site gave an added interest, and the hazel scrub was found to support *Peltigera collina*, *Parmeliella triptophylla* and *Arthopyrenia salicis*, (the last species new to Ireland, but probably under-recorded.)

The five sites studied produced a total of 55 new Vice County records, including 9 new to Ireland. So, if the above whets your appetite, Ireland awaits your attention!

Due gratitude must go to the D o E (NI) Conservation Branch for making these surveys possible, and also to Ray Woods for his initial assessment of the sites. Mark Seaward is also to be thanked for being so helpful and efficient with regard to information on Irish lichen records. I would especially like to thank Brian Coppins for his patient determination of many problematic species; indeed, but for his vigilance, some of the species now recorded as new to Ireland and new to Vice County records, would still be awaiting discovery.

*Reference:* Folan, A CM and Mitchell, M E 1970. The lichens and lichen parasites of Derryclare Wood, Connemara. *Proc. Royal Irish Acad.* 70: 163-170.

Sandy O'Dare

## LLANYCHLWYDOG REVISITED

In April 1973 the BLS held a field meeting in Cardigan and one of the sites visited was the small chapel and graveyard at Llanchlwydog (SN 012343). This churchyard had a large poplar tree on the northern boundary supporting 27 lichen taxa. Of more interest was a box tree on the leaves of which was one of the few British foliicolous lichens *Fellhanera bouteillei*.

The site was revisited in 1985 by a party from Orielton Field Centre. At this time the chapel was derelict and the churchyard completely overgrown. Despite a very intensive search no sign of *F. bouteillei* could be found. The examination of the poplar tree also had to be abandoned as it was occupied by a large number of very aggressive wood ants.

In the summer of 1990 another party from Orielton Field Centre visited the Gwaun Valley. After avoiding a Welsh farmer who claimed that he would be happy to die as long as he took an Englishman with him, we reached the tall saplings and undergrowth cleared from the churchyard. The gravestones still remained in the now cultivated garden and could, I suppose, make an unusual barbecue. The poplar tree had been removed so we were unable to look for the interesting species including *Pannaria conoplea*, *P. mediterranea*, *Sticta limbata*, and *S. sylvatica* found in 1973. The *Buxus sempervirens* however proved to be of much more interest. After a short search we rediscovered *F. bouteillei* growing on the leaves. On the small young twigs, and sometimes spreading on to the leaves, were a number of species including *Parmelia subaurifera*, *P. subrudecta*, *Evernia prunastri* and the rust *Puccinia buxi*. Of particular interest was a small specimen of *P. subaurifera* which was growing entirely on a leaf so perhaps this species should now be added to the short list of British foliicolous lichens.

The rediscovery of *F. bouteillei* might be due to it spreading from small-relic colonies after the shrub clearance increased the light falling on the tree. Whatever the reason, it is always pleasant to refind a species after looking for it at a site across a number of years.

I should like to thank Dr B. Coppins for confirming and identifying the species.

Frank Dobson

## ANOTHER INEXPENSIVE ULTRA-VIOLET LAMP

Long-wave ultra-violet radiation is useful in detecting fluorescent lichen compounds in whole lichen thalli or in lichen extracts in thin-layer chromatography plates. Portable ultra-violet lamps used by philatelists have been suggested as suitable for use in lichenology (*Bulletin 55: 26*, [1984]), although I am told that philatelists would generally use short-wave lamps. A long-wave model that I purchased recently is likely to be very useful, although how long it will last is unknown.

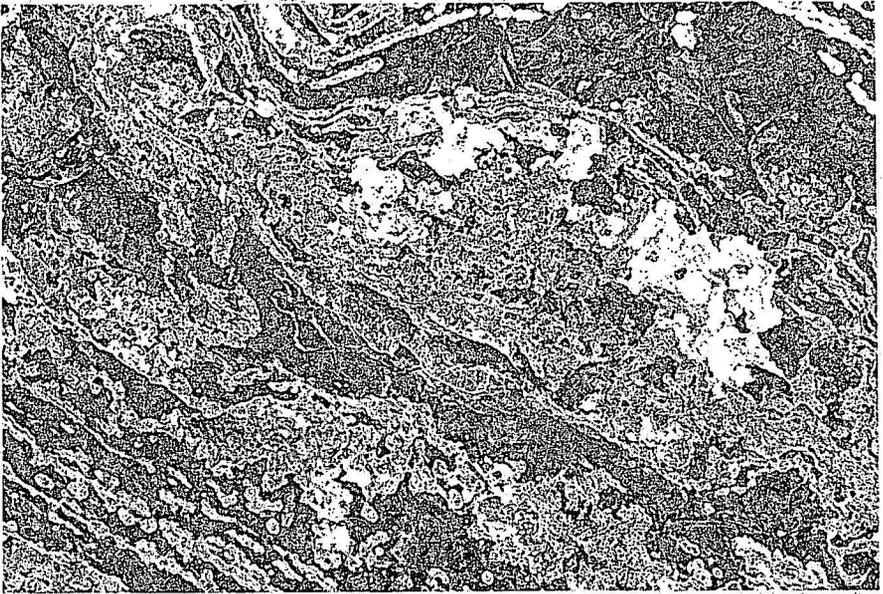
The Super Mini JML 1197 V Fluorescent Lantern is 160 x 53 x 23 mm in size, and runs on four 1.5 V batteries (I do not know how long the batteries will last, but a battery charger and rechargeable batteries of the type produced by Boots is another good purchase). The longwave ultra-violet is emitted by a tube running the length of one side. The tube is powerful enough to enable viewing of whole lichen thalli or TLC plates in a darkened room, and results seem to be identical to those produced by an expensive mains lamp. I have not yet tried the model in the field. Long-wave ultra-violet does not require eye protection. The notes on the box also promise that 'purple coloured light emitted by tube helps create a cosy atmosphere', but I think 'ghostly' might be a better adjective.

The lamp is available from Lindner Publications Ltd., 26 Queen Street, Cublington, Leamington Spa, Tel. (0926) 425026, for £12.50 plus £1 postage and packing.

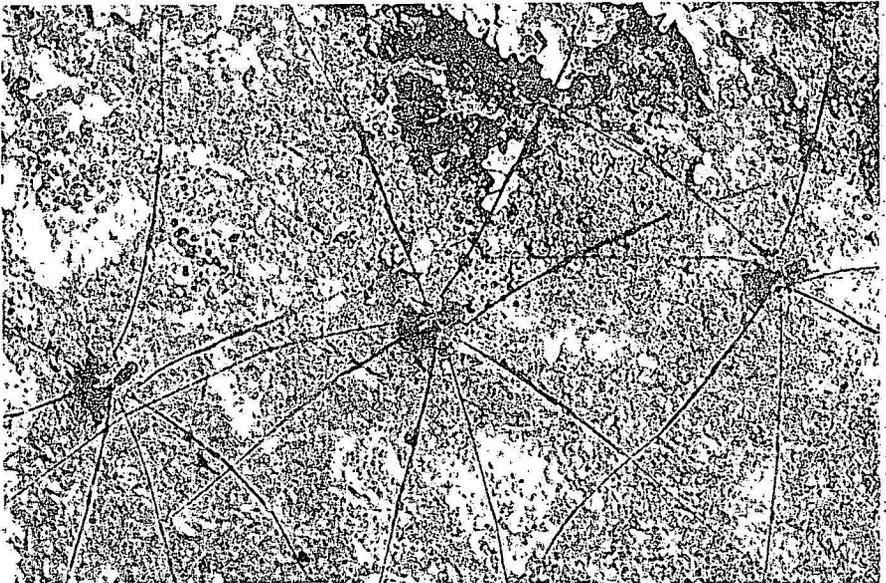
Alan Orange

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**Opposite:** Two award winning submissions in the **British Gas Wildlife Photographer of the Year Competition**. *Lichens on obsidian* was a *Winner* in the 'Composition and Form: Plants' category and shows a striking mozaic of yellow, orange and blue-grey crustose lichens. *Harvestmen warming up* was a *Winner* in the 'Composition and Form: Animals' category but the information content of this photograph, which shows three harvestmen on what appears to be the trunk of a tree, is more lichenological than arachnological! Unfortunately these black and white reproductions do little justice to the coloured originals. (Reproduced with permission of *BBC Wildlife Magazine*.)



*Lichens on obsidian by Jeff Vanuga (USA)*



*Harvestmen warming up by Dick Klees (Netherlands)*

## THE LICHEN HERBARIUM AT ULSTER MUSEUM, BELFAST (BEL)

My recent reorganisation of the lichen herbarium at Ulster Museum provided an opportunity to evaluate its contents in some detail. Material from numerous diverse small collections, including specimens formerly housed at Queen's University, Belfast (BFT), has now been organised into three sections: (1) Ireland, (2) England, Wales, Scotland and the Channel Islands, and (3) Foreign.

The Irish section is composed of c. 1850 packets from 21 vice-counties, with, as would be expected, a preponderance of material from Co. Down and Co. Antrim. The major collectors of Irish lichens are R K Brinklow, S A G Caldwell, P Hackney, J Hunter, M P H Kertland, H W Lett, O Morton, B E Pilcher, J R Pilcher, S A Stewart and C H Waddell; there are also a few items from I Carroll's *Lichenes Hibernici exsiccati*. Material for the remainder of the British Isles comes from a wide variety of sources, covering at least 58 vice-counties, plus Sark, Jersey, Guernsey and the Scilly Isles, notable collectors represented including R K Brinklow, J W Hartley, A R Horwood, W A Leighton (*Lichenes Britannici exsiccati*, incomplete), H M Livens, W Lillie, P G M Rhodes, W G Travis, W West, J A Wheldon and A Wilson; this section comprises c. 1220 packets, but there are in addition the following collections: (a) a single bound volume of 193 mounted lichens, each of which has been localised and dated, collected by E F Noel (? - 1950) during the period 1914-1937 from at least 44 vice-counties, (b) 79 separately mounted specimens in an unbound volume, collected by a Mr Robson (possibly Thomas Robson 1779-1853), one bearing the date 1821 and a few with north of England localities, and (c) material of H M Livens (1860-1946) from 8 vice-counties (mainly the New Forest and the Isle of Wight) collected during the period 1908-1918; the 146 specimens, including 35 from Irish and several foreign localities, are currently being investigated with a view to incorporating them into the main body of the herbarium. The Foreign section is composed of 365 packets of material mainly collected from Finland (*Lichenotheca Fennica*, incomplete), Kenya, Morocco, Switzerland, Zambia and the USA, together with c. 65 specimens collected from the Baffin Bay and Bellot Strait areas during 1857-1859 by D Walker, surgeon and naturalist on board the "Fox" which was sent to ascertain the fate of Sir John Franklin.

Obviously, with a total collection of less than 4000 packets, this herbarium is comparatively small, but its importance lies in its holdings of material from the north of Ireland which is currently under-researched. The herbarium would welcome additional material, especially from Ireland. Donations, loan requests and appointments to research in the herbarium should be addressed to: Mr P Hackney, Botany Assistant, Ulster Museum, Botanic Gardens, Belfast BT9 5AB; FAX 0232-665510, but requests for more detailed information regarding the contents and collectors should be directed in the first instance to the author.

Mark Seaward

## FROM THE ASSISTANT TREASURER

### *Membership List 1991*

Your names and addresses, as they appear on the address label, will form the basis of a new Membership List which will be published and distributed with the Winter Bulletin. *If there are inaccuracies please let me know as soon as possible!* I regret the need for abbreviations but practical considerations make these necessary in some cases. The majority of UK addresses have been checked against the Post Office Guide and names of hamlets and districts have been omitted where not strictly necessary. In compiling the list the same UK County headings will be used as in the Summer 1988 list, no distinction being made, for example, between East and West Sussex.

I am undecided as to which of two layouts to adopt. The list could be published in name-alphabetical order with addresses, followed by names only, listed by County and Country, as in the Summer 1988 List, or with names and addresses by County and Country, followed by an name-alphabetical list giving County or Country of residence.

An advantage of the first layout is that the address of a member can be found instantly: a disadvantage is that members cannot find the addresses of other members living near them without a certain amount of research.

The second layout enables members to see at a glance which members live near them; perhaps important in view of the establishment of Regional Representatives and activities, but individual's addresses can only be found immediately if their County or Country of residence is known.

If you have strong views in favour of either layout please let me know!

### *Subscriptions*

Subscriptions for 1991 should have been paid on or before 1st January this year. Although a reminder was sent to those whose subscriptions were outstanding I regret that there are still members who are in arrears and I ask them now to pay promptly as, otherwise, it may not be possible to include their names in the 1991 Membership List.

I am sometimes asked why annual invoices or reminders that subscriptions are due are not sent to each member and the simple answer is cost, not only of paper, printing and postage, but also of time. There is no easier subscriptions-due date to remember than 1st January and a reminder appears in each *Bulletin* 'From the Assistant Treasurer'!

## Postcards

British Lichen Society postcards are selling well and are available at reduced rates for more than five packs on application to the Assistant Treasurer. This is a high quality publication printed in full colour with a semi-matt finish. For the lichenologist the cards illustrate a wide range of growth forms and habitat but are also of interest to non-lichenologists because of their aesthetic appeal.

On the reverse of the cards are printed the following brief notes about each lichen.

*Caloplaca cirrochroa*, a striking lichen found on well-lit hard limestone rocks.

*Lecanora muralis*, a crustose lichen, increasingly common in urban areas.

*Parmelia pastillifera*, a foliose lichen with black isidia.

A mosaic of lichens growing on ash bark, including *Ramalina farinacea*, *Lecanora chlorotera* and *Lecidella elaeochroma*.

*Gyalecta jenensis*, a lichen with minute orange-centred fruiting bodies.

*Hypogymnia physodes*, a particularly pollution tolerant foliose lichen.

*Roccella phycopsis*, found on coastal rocks; one of a group of lichens used for making litmus and dyeing cloth.

*Evernia prunastri*, a shrubby lichen, much used in the perfume industry, with *Parmelia caperata*, an easily recognised apple-green foliose lichen.

*Xanthoria elegans*, most commonly found on rocks and concrete posts enriched by bird droppings.

*Graphis elegans*, showing the characteristic lirelliform fruiting bodies.

*Usnea articulata*, a distinctive fruticose lichen of clean air regions.

*Solorina saccata*, a large foliose lichen found on soils of limestone ledges.

*Caloplaca flavescens*, a saxicolous lichen, common on gravestones.

*Physconia distorta*, a grey-brown lichen with a powdery covering on its fruiting bodies.

*Caloplaca crenularia*, a common lichen with rust-red fruits, found on acid rocks.

*Cladonia coccifera*, showing its distinctive cups and red fruiting bodies.

## Bulletin backnumbers

Backnumbers of BLS Bulletins provide a wealth of readily assimilated information covering many aspects of lichenology. Most are still available. For those who have joined the Society only recently, may I recommend the special half-price offer of *Bulletins* 61-66 for £4.50 including packing and postage.

POSTCARDS and BULLETIN BACKNUMBERS are available from the Assistant Treasurer: see 'PUBLICATIONS FOR SALE'.

Jeremy Gray

## REFEREES: A NEW SYSTEM

The function of taxonomic referees is to assist members of the British Lichen Society in the identification of lichens. For some time it has been apparent that a few lichenologists in Britain have been inundated with specimens for identification. To spread the load and improve this facility for members, the Society is introducing a two-tier system, involving Regional and Specialist Referees.

All lichens collected in the British Isles should in the first instance be sent to the appropriate Regional Referee (see below), no more than 6 specimens to be sent at any one time without obtaining prior approval.

Specimens submitted should be adequate in size (or at least in reasonable condition) and well packeted with full documentation:- country, county or vice-county, borough or parish, precise locality and grid reference, altitude, date, habitat and ecology, notes, name of collector and collecting number. Identification should be attempted before sending material to a referee and details of anatomical investigations and chemical reactions included where appropriate. Return postage should always be included.

### *Regional Referees*

Regional referees are encouraged to keep a record of interesting species in their area and to send such records either to the *Bulletin* or to the Mapping Recorder. Regional referees may also be willing to give advice on conservation problems in their areas and also help visiting lichenologists with information on interesting localities.

Bailey R Mr	Gloucester
Benfield B Mrs	Devon
Brinklow R Mr	East Scotland
Carrington J V Mr	S & W Somerset
Chester T W Mr	Northampton
Corner R W Dr	the Borders
Dalby K	Shetland Isles
Day I P Mr	Cumbria
Duke T G Mr	Staffs, Salop, Worcs, Orkney
Elliott E Mr	Wiltshire
Ferry B W Dr	Surrey
Fletcher A Dr	East Midlands (Leics, Rutland, Notts, Warks.)
Fox, B W Professor	Cheshire

Fryday A M Mr	Inner and Outer Hebrides
Giavarini V J Mr	Dorset, W Isles
Gilbert O L Dr	Northumberland, Durham, Derbyshire
Gosling M Mr	Lancashire
Hitch C J B Dr	Suffolk
Lambley P W Mr	Norfolk
Laundon J R Mr	London and Middlesex
Orange A Mr	S Wales
Palmer K Mr	Kent
Pope C R Dr	Isle of Wight
Purvis O W Dr	Bucks, Berks, Oxford
Rose F Dr	Sussex, Hereford
Sandell K A Mr	Hants
Seaward M R D Prof	Lincs, Yorkshire
Skinner J F Mr	Essex
Woods R G Mr	N & C Wales

Any further offers as Regional Referees for areas not covered will be welcome. If any referee wishes to withdraw from the list, please inform OWP as soon as possible.

#### *Specialist Referees*

On no account should material be sent direct to a Specialist Referee without obtaining their approval beforehand and then only material within the groups indicated should be sent.

Breuss O Dr	<i>Catapyrenium</i> , <i>Placidiopsis</i>
Clerc P Dr	<i>Usnea</i> (W. Europe, Macaronesia, eastern N America)
Coppins B J Dr	<i>Arthonia</i> , <i>Bacidia</i> , <i>Micarea</i> only
Fletcher A Dr	Coastal lichens
Fryday A M Mr	Montane lichens, lichens of metal-rich soils
Gilbert O L Dr	Allterricolous lichens (excl. <i>Catapyrenium</i> , <i>Cladonia</i> ), montane lichens on basic rocks, flint & chalk pebbles
James P W Mr	Critical complexes (all genera)
Moberg, R Dr	Physciaceae
Orange A Mr	Pyrenocarpous lichens
Purvis O W Dr	Lichens on metal-rich rocks
Rose F Dr	Critical woodland lichens (epiphytes only)
Sandell K A Mr	Caliciales (British)
Scheidegger C Dr	<i>Buellia</i>

Tibell L Dr  
Tindal E  
Tønsberg T Mr

Caliciales, *s. lat.*  
*Toninia*, *Psora* and *Hypocenomyce*  
Corticolous sterile crusts

These lists are not exhaustive and will be subject to revision. Any lichenologist willing to help either as a specialist or regional referee should contact the authors.

William Purvis & Francis Rose

### THE USE OF THIN LAYER CHROMATOGRAPHY IN LICHEN TAXONOMY - A PERSONAL COMMENT

The use of TLC has undoubtedly been a major development in lichenology in recent years and is of immense value. However, I would like to make a personal plea to lichen taxonomists to exercise some caution. If there is no reasonably constant morphological character separating two taxa with different chemistry, I do feel strongly that subspecific or varietal status is more satisfactory than full specific status. Also, one needs to consider carefully the structural chemistry of differentiating compounds. Two substances that may give quite different "spots" on a plate may in fact be closely chemically related. If it is a question of two compounds differing, say, only in the presence of a single hydroxyl or carboxyl group, then it seems to me that such a difference is very likely to be due to a single gene. This may represent only the very final stage of a genetic and chemical pathway and, as such, it may be of minimal taxonomic significance. If, however, there are differentiating compounds present with *material* differences in chemical structure, then this may indicate that several different genes have been involved in the physiological pathway. In such cases, varietal or subspecific rank could be appropriate.

What would we find if we ran TLCs of the body fluids of all the members of the BLS, all presumably of one biological species? Someone should attempt something of this kind. Would we find some interesting differences in their TLCs? If that proved to be so, we would need to think seriously about the whole question - and by that I *don't* mean that we would feel we needed to describe new varieties or subspecies of *Homo sapiens*! This note is intended to provoke discussion!

Francis Rose

## NEW, RARE AND INTERESTING BRITISH LICHEN RECORDS

(Contributions to this section are always welcome. Please submit entries to Frank Brightman, South London Botanical Institute, 323 Norwood Road, London, SE24 9AQ, in the form of species: habitat: locality: vice county (VC): grid reference (GR): date: comments: recorder. Grid references may be abridged in the interest of conservation: they will be omitted when the record has been published elsewhere).

*Arthonia arthonioides* (*A. aspersa*): on oak with *Schismatomma niveum*, Portledge, near Peppercombe, VC 4, N. Devon, GR 21/32.

F Rose, A M O'Dare & R Jarman

*Arthonia zwackii*: on field maple, Torbryan, VC 3, S. Devon, GR20/68. 1991. Fourth British site. Determined B J Coppins.

B. Benfield

*Arthonia zwackii*: on *Quercus*, Dunsland Park, North Devon, VC 4, GR 21/40-04-, determined by B J Coppins.

F Rose, R Jarman, A M O'Dare

*Arthopyrenia nitescens*: on *Corylus*, coastal woods, Portledge, N. Devon, VC 4, GR 21/37-23-, 1990, determined by B J Coppins.

F Rose, R Jarman, A M O'Dare

*Arthopyrenia viridescens*: on hazel, Low Stile Wood, Borrowdale, VC 70, Cumberland, GR 35/21. 1990. New to England.

B J Coppins & A M O'Dare

*Arthothelium ruanum*: locally abundant on ash and hazel, Great Wood, Derwentwater, VC 70, Cumberland, GR 35/22. 1990. New to Lake District.

B J Coppins & A M O'Dare

*Bacidia caligans*: on willows, Higher Start Fen, Slapton, VC 3, S. Devon, GR 20/80-44-. 1991. An overlooked species, mainly known on  $\pm$  calcareous rocks and mortar; similar to *B. arnoldiana* but with pinkish brown apothecia. Also seen at Dendles Wood (20/66) on elder.

B J Coppins & A M O'Dare

*Bispora lichenum*: lichenicolous on a sterile crust, cf. *Trapelia placodioides*, in an abandoned railway cutting near Ellon, N. Aberdeen, VC 93, GR 38/941323, 1990. Determined D L Hawksworth; apparently the first definite record from the British Isles of this recently described species.

B Abbott

*Bacidia igniarii* (Nyl.) Vezda: on aspens by Water of Tanar, Glentanar pine forest, VC 92, S. Aberdeen, GR 37/49, 1990. Coppins 13547 (E). New to Britain.

B J Coppins & A M O'Dare

*Buellia pulverea*: on *Acer*, Barfold Wood, Plaistow, W. Sussex. VC 13, GR 21/40-050, 1990. Determined B J Coppins. New to Sussex.

F Rose

*Buellia uberior* Anzi: on exposed basaltic rocks at 130 ft alt., Housey Crags, Langleeford, VC 68, N. Northumberland, GR 36/95-21-. 1974. Coppins 392 (E). New to Britain. Determined C. Scheidegger.

B J Coppins

*Buellia violaceofusca* Thor & Muhr: on old oaks in pasture woodland, Coill' a 'Cnacain, Strath Oykeell, VC 107, E. Sutherland, GR 29/40. 1990. Coppins 13614 (BM,E,S). New to Britain. Confirmed G. Thor.

B J Coppins & A M O'Dare

*Calicium lenticulare* (*C. subquercinum*): abundant on oak trunks, Dendles Wood NNR, Dartmoor, VC 3, S. Devon, GR 20/66. 1991. Its abundance here suggests that it has been under-recorded in Dartmoor woodlands.

B J Coppins & A M O'Dare

*Cavernularia hultenii*: on *Pinus*, Glen Achall, Wester Ross, VC 105, GR 28/23-93-, 1990. A new northern limit for this, the most northerly relic of the Caledonian Pine Forest (with *Lecidea ochrococca*, *Platismatia norvegica*, etc.)

F Rose

*Chaenotheca chlorella* (*C. carthusiae*): on old willow, Stowe Park, VC 24, Buckinghamshire, GR 42/67-37-. 1990.

A M O'Dare

*Coniocybe sulphurea*: on *Fraxinus* (decorticate part of a large tree), in wood north of Bignor, W. Sussex, VC 13, GR 41/98-15-. 1990. New to Sussex.

K Sandell & F Rose

*Enterographa sorediata*: on *Quercus*, Savernake Forest, N. Wiltshire, VC 7, GR 41/22-65-. 1990. Hitherto known only in the New Forest and Norfolk.

K Sandell

*Halecania viridescens*: abundant on elder branches at edge of wood, Dendles Wood NNR, Dartmoor, VC 3, S. Devon, GR 20/66. 1991. New to SW England, but probably overlooked.

B J Coppins & A M O'Dare

*Heterodermia obscurata*: on *Salix* in carr, Dunsland Park, N. Devon, VC 4, GR 21/40-05-, 1990.

F Rose, A M O'Dare & R Jarman

*Lecanactis amylacea*: on *Quercus*, Whiddon Park, S. Devon, VC 3, GR 20/72-89-. 1990. New to Devon.

F Rose, A M O'Dare & R Jarman

*Lecanactis hemisphaerica*: on plaster-work on church wall, Pagham, W. Sussex VC 13, GR 40/88-97-, 1990. New to Sussex.

P W James & F Rose

*Lecania rabenhorstii*: North Mundham church, W. Sussex, VC 13, GR 41/87-02-. 1990. New to Sussex.

P W James & F Rose

*Lecania suavis*: Kirdford church, W. Sussex, VC 13, GR 40/88-97-, 1990. New to Sussex.

P W James & F Rose

*Lecania turicensis*: Pagham church, W. Sussex, VC 13, GR 40/88-97-, 1990. New to Sussex.

P W James & F Rose

*Lobaria pulmonaria*: now known in three present-day sites in ash/oak woodlands of the Cotswold plateau, E. Gloucester, VC 33: on *Ulmus*, Oakley Wood, GR 32/97-03-, 1986 [KA] on *Quercus*, Chedworth Woods, GR 42/06-14-. [KA, RJ, FR], on *Fraxinus*, luxuriant on several trees, Guiting Wood, GR 42/08-26-. 1990 [KA]. Thought to be extinct in Gloucester, these localities are rediscoveries, where it is associated with other Lobarion species such as *Catillaria atropurpurea*, *C. sphaeroides*, *Pachyphiale carneola*, etc.

K Alexander, R Jarman, & F Rose

*Micarea synotheoides*: on oak trunk, Dendles Wood NNR, Dartmoor, VC 3, S. Devon, GR 20/66. 1991. New to SW England. Also here, at their second sites for SW England were *M. adnata* and *M. stipitata*.

B J Coppins & A M O'Dare

*Opegrapha thelotrematis*: on *Thelotrema lepadinum* on hazel, Low Stile Wood, Borrowdale, VC 70, Cumberland, GR 35/21, 1990. New to England.

B J Coppins & A M O'Dare

*Opegrapha zonata*: on wall of church, Lyminster, W. Sussex, VC 13, GR 41/22-04-, 1990. New to Sussex: it should be sought elsewhere on old sandstone stonework, in southern England.

K Sandell & F Rose

*Parmelia conspersa*: on brick wall, Aldinbourne churchyard, W. Sussex, VC 13, GR 51/92-05-, 1990; on brick wall, Shillinglee, W Sussex, VC 13, GR 51/95-12-, 1990: on roof of Wiggonholt church; widespread on artificial substrata in Sussex.

F Rose

*Parmelia arnoldii*: on *Salix* (with *P. sinuosa*), in boggy carr. Dunsland Park, N. Devon, VC 4, GR 21/40-05-, 1990.

A M O'Dare, R Jarman & F Rose

*Parmelia conspersa*: on wall, Fletchling churchyard, E. Sussex, VC 14, GR 61/40-22-, 1990.

K Palmer

*Parmeliella plumbea*: on *Fraxinus* (an old pollard), Whiddon Park, S. Devon, VC 3, GR 20/72-90-, 1990. The first S. Devon record for many years.

A M O'Dare, R Jarman & F Rose

*Parmelia perlata*: this species was not discovered in north-west London in the survey of 1988. (Hawksworth & McManus, *Bot. J. Linn. Soc.* 100: 99-109, 1989) but has since appeared in Ruislip in the well-worked local Nature Reserve. In addition, several sites are now known for this extremely sulphur dioxide sensitive species in Epping Forest, which we are currently re-surveying. Details of these records are given below, together with thallus sizes where available:

Bellringer's Hollow, Great Monk Wood, Epping Forest, S. Essex, VC 18, GR 51/525980, on base of *Fagus* (1 specimen; 1.2 cm diam.) 11 July 1989, [DLH & PMM]; by Ching Brook, south west of Whitehall Plain, GR 51/399941, on *Salix* (no further data), October 1990, [M W Hanson]; Baldwins Pond, GR 51/425980, on *Salix fragilis* at north end of lake (3 specimens; largest 2 cm diam.), 12 December 1990, [DLH & PMM]. Ruislip Local Nature Reserve, VC, GR 51/077894, on *Salix fragilis* (2 specimens; largest c. 1.5 cm), 9 December 1990, [DLH & T. Ahti].

D L Hawksworth & P M McManus

*Peltigera malacea*: abundantly fertile on sandy ground by forest track, Culbin Forest, VC 95, Moray, GR 38/006644. 1990. Thought until recently to be extinct in Britain, but now known from a few coastal sites in E. Scotland.

B J Coppins

*Protoparmelia nephaea* (Sommerf.) R. Sant.: in acid rock underhangs at c. 1250 ft, Gilfumman, Glen Mark, VC 90, Angus, GR 37/48. 1989. New to Britain. The material is sparingly fertile, but characterised by the dark brown, shiny areoles growing on a black prothallus which produces 2-celled to submuriform, blackish green thalloconidia. Previous British records refers to *P. atriseda*. Determined B J Coppins.

R C Munro

*Psilolechia leprosa*: on church wall by lightning conductor, Lurgashall, W. Sussex, VC 4, GR 41/93-27-, 1990. New to Sussex.

K Sandell & F Rose

*Rinodina biloculata*: on elder branch at edge of wood, Dendles Wood NNR, Dartmoor, VC 3, S. Devon, GR 20/66. 1991. New to English mainland, but easily mistaken for *Buellia punctata* and hence possibly overlooked.

B J Coppins & A M O'Dare

*Rinodina mniaraea* var. *cinnamomea* Th. Fr.: on mossy turf in alpine moss heath at c. 850 m alt., Beinn Eighe NNR, VC 105, W. Ross, GR 18/96. 1990. New to Britain, occurring with other montane rarities such as *Schadonia fecunda* (previously known only from Ben Lawers), *Brigantiaea fuscolutea* and *Nephroma arcticum*. Confirmed H M Mayrhofer.

B J Coppins, A M Fryday & O L Gilbert

*Staurothele geioca*: among bryophytes on compacted, calcareous soil; limestone quarry (150 m) Creag Aoil, Fort William, Westernness, VC 97, GR 27/18,77; and beside dam, Lochan Breachlaich (400 m) Killin, Mid-Perthshire VC, 88, GR 27/16,31. New to Britain. The small, black perithecia on a thin, dark green-black, subgelatinous thallus should be looked for on damp soil beside paths and tracks. Confirmed A Orange.

A Fryday

*Strangospora ochrophora*: on large ash, Guiting Wood, E. Gloucester, VC 33, GR 42/08-26-, 1990.

K Sandell, & N A Sanderson

During a lichen survey in Co. Fermanagh (VC H33), NI, 1990, some 55 new Vice County records were made. The sites visited included: Correl Glen NNR (GR H/08-54); Crossmurrin NNR (GR H/11-34-); Florence Court (GR H/17-34-); Hanging Rock NNR (GR H/11-36); Marble Arch NNR (GR H/12-35). The following (all confirmed or determined by B J Coppins) are all new to Ireland and are but a selection of the most interesting records:

*Arthonia thelotrematis* on *Thelotrema lepadinum* on ash, Marble Arch.

*Arthopyrenia carneobrunneola*: on ash, hazel and willow in Correl Glen and at Marble Arch.

*Arthopyrenia salicis*: on hazel at Crossmurrin and Marble Arch.

*Arthopyrenia viridescens*: on hazel and willow, Marble Arch.

*Gyalideopsis muscicola*: on mosses on old birch, Correl Glen.

*Lecanora farinaria*: on willow, Florence Court.

*Lecidea epizanthoidiza* Nyl. (*L. efflorescens* (Hedl.) Erichsen): on willow, Marble Arch. Also new to British Isles. This species has PD+ red soralia (argopsin); previous specimens under this name from the British Isles have C+ red, PD- soralia (gyrophoric acid) and belong to another, closely related species yet to be formally described.

*Micarea misella*: on old decorticated pine, Florence Court.

*Opegrapha thelotrematis* on *Thelotrema lepadinum* on ash, Marble Arch.

*Xylographa truncigena*: on old decorticated pine, Florence Court.

Also not previously recorded this century from the British Isles is:

*Enterographa elaborata*: on mature ash in woodland on N-facing limestone scarp face, Hanging Rock.

A M O'Dare

## LITERATURE PERTAINING TO BRITISH LICHENS - 9

Species newly reported for Britain and Ireland are prefixed by \*, and incidental comments by myself are given in square brackets.

*Lichenologist* 22 (4) was published on 1 November 1990 and 23 (1) on 12 February 1991.

GRUBE, M & HAFELLNER, J 1990. Studien an flechtenbewohnenden Pilzen der Sammalgattung *Didymella* (Ascomycetes, Dothideales). *Nova Hedwigia* 51:283-360. A treatment of *Didymella*-like lichenicolous fungi, most of which are assigned to *Didymellopsis* (Sacc.) Clem. & Shear or to the new genus *Zwackhiomyces* Grube & Hafellner. British species of these two genera are: *D. collematum* (J. Steiner) Grube & Hafellner (syn. *Didymella collemata* (J. Steiner) Vouaux; on *Collema* spp.), *D. pulposi* (Zopf) Grube & Hafellner (syn. *Didymella pulposi*; on *Collema*, *Lempholemma* and *Leptogium* spp.), \**Z. berengèrianus* (Arnold) Grube & Hafellner (on *Lecidea berengèriana*), *Z. dispersus* (Lahm ex Körber) Triebel & Grube (syn. *Stigmidium dispersum*; on *Protoblastenia rupestris*), and \**Z. immersae* (Arnold) Grube & Hafellner (on *Clauzadea* spp.). *Z. sphinctrinoides* s.str. (syn. *Didymella sphinctrinoides*) is not correctly reported from the British Isles. A description and illustrations of '*Didymella*' ('*Arthopyrenia*') *bryospila* is also provided.

FEUERER, T 1991. Revision der europäischen Arten der Flechtengattung *Rhizocarpon* mit nichtgelbem Lager und vielzelligen Sporen. *Bibliotheca Lichenologica* 39: 1-218. Eighteen species of non-yellow *Rhizocarpon* species are accepted of which ten occur in the British Isles, e.g. *R. eupetraeum* (Nyl.) Arnold (syn. *R. grande*), *R. lavatum* (Fr.) Arnold [?(Fr.) Hazslin] (syn. *R. perlutum*), and *R. obscuratum* (syn. *R. orphninum*, *R. postumum*).

HALE, M E 1990. A synopsis of the lichen genus *Xanthoparmelia* (Vainio) Hale (Ascomycotina, Parmeliaceae). *Smithsonian Contributions to Botany* 74: [i-iii], 1-250. A world synopsis, with descriptions, of the 406 species of this [controversial] segregate of *Parmelia* s.lat. \**X. somloensis* (Gyelnik) Hale (syn. *Parmelia somloensis* Gyelnik) is cited for 'Great Britain' [presumably a redetermination of British material of *P. tinctoria*].

HALLINGBÄCK, T 1990. Transplanting *Lobaria pulmonaria* to new localities. *Windahlia* 18: 57-64. Essential reading for anyone involved in, or about to embark upon, transplant work. *L. pulmonaria* was successfully 'transplanted' in southern Sweden using soredia and thallus fragments. The discussion includes the ethics of transplanting for reasons of conservation.

HAWKSWORTH, D L & SANTESSON, R 1990. A revision of the lichenicolous fungi previously referred to *Phragmonaevia*. In JAHNS 1990: 121-143 (see below). The two lichenicolous species of *Phragmonaevia* are included in the new genus *Corticifuga* D. Hawksw. & R. Sant., as *C. fuckelii* (Rehm) D. Hawksw. & R. Sant. and *C. peltigerae* (Fuckel) D. Hawksw. & R. Sant.

HARTEL, H & RAMBOLD, G 1990. Zur Kenntnis der Familie Rimulariaceae (Lecanorales). In JAHNS 1990: 145-189 (see below). The family Rimulariaceae encompasses the genera *Lithographa* s.str. and an expanded concept of *Rimularia* Nyl. (syn. *Mosigia* Fr. ex Massal. nom. illegit.). A key and description to species are provided. British species treated are: *L. tessarata*, *R. badioatra* (Krempelh.) Hertel & Rambold (syn. *Lecidea illita*, *Mosigia intercedens* (Magnusson) R. Sant. [I question this!], *R. furvella* (Nyl. ex Mudd) Hertel & Rambold (syn. *Lecidea furvella*), *R. fuscocinerea* Muhr & Tønsh., *R. gyrizans* (Nyl.) Hertel & Rambold (syn. *Lecidea fuscocinerea* auct. brit., ?*L. mullensis* [needs further study]), *R. insularis* (Nyl.) Rambold & Hertel (syn. *Lecidea insularis*), and *R. limborina* Nyl. (syn. *Lecidea limborina*, *L. subgyratula*).

JAHNS, H M (ed) 1990. Contributions to lichenology in honour of A. Henssen. *Bibliotheca Lichenologica* 38: [i-iii] 1-427. [Price DM 160]. Twenty-eight papers, by many of Professor Henssen's colleagues and friends, on a wide variety of lichenological subjects. All papers, bar two, are in English; a few are included here, but see forthcoming review in *The Lichenologist* for more details.

JÖRGENSEN, P M & JAMES, P W 1990. Studies in the lichen family Pannariaceae IV: The genus *Degelia*. In JAHNS 1990: 253-276 (see above). The concept of *Degelia* Arvidsson & D Galloway is expanded to include *D. atlantica* (Degel.) P.M. Jörg. & P. James (syn. *Parmeliella atlantica*), *D. plumbea* (Lightf.) P.M. Jörg. & P. James (syn. *Parmeliella plumbea*), and the new species \**D. ligulata* P.M. Jörg. & P. James. The last is similar to *D. atlantica*, but instead of terete isidia has flattened schizidia which are often apically blackened; it is known from Kerry, W Galway [Dawros River is not in Donegal!] and W Donegal.

LOWEN, R 1990. New combinations in *Pronectria*. *Mycotaxon* 39: 461-463. Lichenicolous species of *Nectriella* are transferred to *Pronectria* Clem. British taxa are: \**P. anisospora* (Lowen) Lowen, *P. robergei* (Mont. & Desmaz.) Lowen, *P. tenacis* (Vouaux) Lowen, *P. tenuispora* (D. Hawksw.) Lowen, and *P. tincta* (Fuckel) Lowen.

MANNING, S A 1990. Additional records of *Cladonia* (Lichens) in Norfolk. *Trans. Norfolk Nat. Soc.* 28: 402-405. Additional records to Lambley's recent (1989) checklist, and a note on *Cladonia* habitats in the county.

NAVARRO-ROSINÉS, P & HLADUN, N L 1990. El género *Sarcopyrenia* Nyl. (ascomicetes liguenícolas) en Europa y norte de Africa. *Candollea* 45: 469-489. This revision recognises four species. The two British specimens (and others from northern Europe) studied are referred to *S. gibba* var. *geisleri* (Beckh.) Nav. - Ros. & Hladun; var. *gibba*, which is mainly confined to the mediterranean region, is shown to have ascospores that are more spirally curved and less distinctly swollen at the ends. The remaining three species have  $\pm$  straight, rod-shaped or filiform ascospores.

OBERHOLLENZER, H & WIRTH, V 1990. Contributions to a revision of the lichen genus *Fuscidea*. -III: *Fuscidea recensa* (Stirton) Hertel, V. Wirth & Vězda. In JAHNS 1990: 367-375 (see above). A detailed description and discussion of this much overlooked species.

POELT, J & OBERMAYER, W 1990. Über Thallosporen bei einigen Krustenflechten. *Herzogia* 8: 273-288. Examples of dark coloured 'thallospores' produced by crustose lichens are described and illustrated. [These include the recently identified from E Scotland, \**Protoparmelia nephaea* (Sommerf.) R. Sant.].

POELT, J & VÉZDA, A 1990. Über kurzlebige Flechten (On shortliving lichens). In JAHNS 1990: 377-394 (see above). A 'must' for the devotees of transient lichen habitats, being a discussion of a selection of ephemeral lichens including the recently rediscovered (in Britain) '*Biatora*' *humida* Kullhem, and the still to be rediscovered *Aphanopsis coenosa* (Ach.) Coppins & P. James.

STENROOS, S 1990. *Cladonia luteoalba* - an enigmatic *Cladonia*. *Karstenia* 3: 27-32. Discussion of the taxonomic status and podetial morphology, together with maps of the 4 chemotypes (3 from the British Isles).

WOLSELEY, P A & O'DARE, A M 1990. The use of epiphytic lichens as environmental indicators in Exmoor woodlands. *Somerset Ecology* 1: 3-22. The first paper in this new journal, published by The Somerset Trust for Nature Conservation. A condensed [more digestible!] presentation of the authors' mammoth *Exmoor Woodland Lichen Survey* (1989), but with some added discussion.

Brian Coppins

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