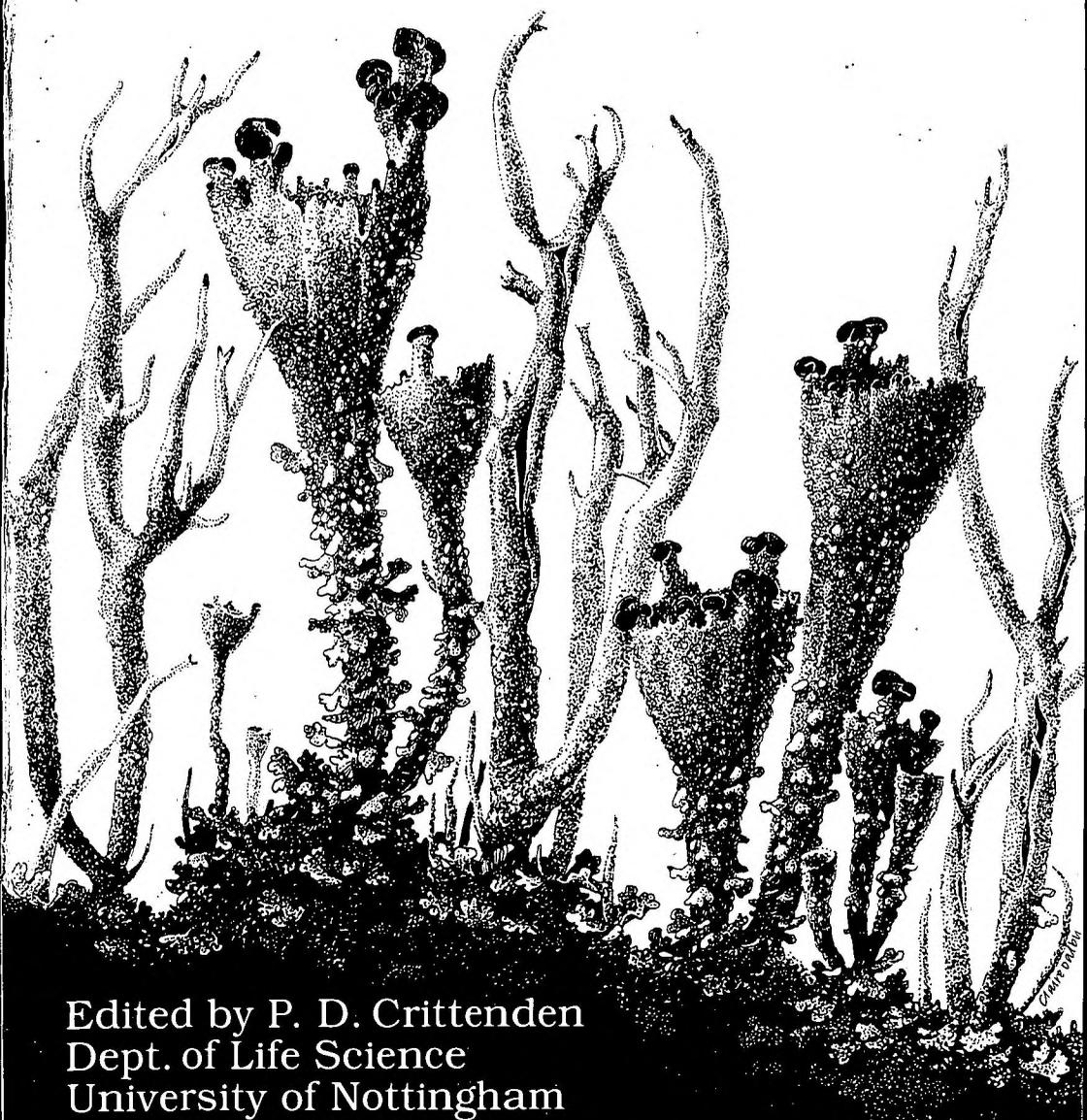


BRITISH LICHEN SOCIETY BULLETIN

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University of Nottingham

FORTHCOMING BLS MEETING

NORTH WALES (Bangor) - Habitat Management Workshop
Leader: Anthony Fletcher

3-6 September 1997

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SUBMISSION DEADLINE - 19 September 1997

Cover artwork by Claire Dalby

WHAT FUTURE FOR LICHENOLOGY?

"... as a founding member of the Society how do you view the possibility that in 10 years time there may be no-one doing serious research on lichens in a UK university? How is lichenology contributing to symbiology at large ... ? Do you have any observations on the performance of the Society or any advice for us?" These were among the questions put by the editor when he invited me to contribute to this issue of the *BLS Bulletin*.

When I started studying lichens as a postgraduate in 1951, there was no-one on the staff of a UK university who had lichens as a principal research interest, so I had to go to Uppsala University for a year to get a basic grounding in lichenology. Symbiology was scarcely recognised as a subject, and the BLS did not exist. Within the next 10 - 15 years, all this was to change.

As with many biological specialities, the study of lichens over the centuries has oscillated between peaks of interest and troughs of neglect. A L Smith's monumental monograph¹ recognised seven periods in the history of lichenology, the first of them from the days of Theophrastus (371 to 284 B.C.) until 1694. Those like myself, whose primary interest is in symbiosis, are concerned mainly with the seventh period, which starts in 1867 with Schwendener's description of the dual nature of lichens² and continues until the present day.

Schwendener's paper brought lichens on to the centre stage of botany for a considerable while, especially because of the controversy it stimulated and the long time taken for it to be generally accepted that gonidia were algae and not buds produced from hyphae. In the introduction to his classic *The Lichen-Flora of Great Britain, Ireland and the Channel Islands*, Leighton (1879) states "I have purposely omitted any mention of the Schwendenerian Theory of Lichens, as I cannot but regard it as purely imaginary, 'the baseless fabric of a vision'"

In the couple of decades following Schwendener's paper, there were various attempts to culture the symbionts and resynthesise lichens. The early and seemingly easy successful artificial synthesis of lichens such as *Xanthoria parietina* by Bornet³ and by Gaston Bonnier⁴ were not found repeatable by others, so that interest in the symbiosis went into substantial decline for the first part of the present century with the prevailing belief that Bornet's and Bonnier's successes were due to contamination.

Meanwhile, as interest in the physiology of higher plants began to develop, it

extended also to lichens, especially as foliose and fruticose lichens proved quite robust as experimental material, and there was not then the concern with the need for conservation. Very sound work on the photosynthesis, respiration and water relations of lichen thalli was carried out between the wars. It is worth remembering that during this period, when the number of academic staff in universities was very much smaller than at present, there were several researchers working and publishing on lichen physiology. Fraymouth⁵ and Smyth⁶, both at Bristol University, published key papers on thallus physiology as did a number of others in universities in continental Europe. Otto von Darbishire, the Professor of Botany at Bristol, gave as his Presidential Address to the British Mycological Society⁷ in 1923, a masterly survey of current developments in lichenology.

The next - and substantial - wave of interest in the biology of lichens and their symbiosis reached its peak about half way through the second half of the present century, although its beginnings are perceptible in the late 30s and early 40s. In 1939 Thomas⁸ made, under incontrovertibly sterile conditions, the first substantiated artificial synthesis of a lichen, *Cladonia pyxidata*, which reached the stage of forming small podetia with scyphi (although his attempts to repeat this in a further 800 culture flasks all failed!). Quispel (1943)⁹ made the first important modern experimental observations on the mutual relations of algal and fungal symbionts through the ingenious use of lichenised crusts. Both Thomas, and Quispel in a later paper¹⁰, suggested that sub-optimal nutrient conditions and perhaps maintenance of correct (and possibly varying) humidity conditions might be essential for successful artificial synthesis. This opened the way for the considerable and substantial achievements of Ahmadjian, starting in 1959¹¹, in developing reliable and defined conditions for the artificial synthesis of a range of species.

Coincidentally with these advances, I had the very great good fortune to start research into the lichen symbiosis just as radioactive isotopes were becoming widely used in the study of metabolic processes; I had learnt how easy these techniques were during 8 months spent in the laboratories of Melvin Calvin, who later won the Nobel Prize for elucidating the path of carbon in photosynthesis. In what now seem absurdly simple experiments, I was able to begin a programme of research into the transfer of carbohydrates produced in photosynthesis from the algal to the fungal symbiont.

Meanwhile an important avenue of field research had opened with the realisation of the extreme sensitivity of lichens to atmospheric pollution. This could be linked in part to laboratory observations on the remarkable capacity of lichens to absorb substances from solution. A much broader and stronger

link between the physiology of lichen thalli and their distribution in nature was forged through the work of a number of talented physiological ecologists, perhaps the most outstanding of whom has been Otto Lange whose excellent publications now span more than forty years.

But the study of lichens is now in a phase of serious decline leading towards a trough of neglect. Those of us lucky enough to have been in at the peak of interest are growing old, with very few young successors. Lichenology is out of fashion with research councils, and inventory taxonomy seems not well regarded by museums and conservation agencies (unless of course it concerns birds, large furry animals or glamorous parasites). The "new" techniques dominating so much of biology - such as molecular genetics and DNA sequencing - have found no novel and dramatic applications in lichens. But, it will not always be so. When I started research, the high peaks of biochemistry were in the elucidation of metabolic pathways, and "street credibility" from one's laboratory peers was gained only if the enzymes involved could be prepared in pure crystalline form; all this is now irrelevant old hat. Molecular biology will go the same way in due course, because it cannot on its own solve the fundamental biological problems of: how humans should identify and classify organisms in practice; how the growth, development and reproduction of those organisms interact with their environment to give their observed distribution; and how this distribution will change in response to climatic change and other consequences of human activity. We must keep in mind that the present dominance of molecular biology is constraining the development of many other branches of plant science besides lichenology.

New phases of interest in biological specialities, such as lichenology, begin when a new and appropriate technique becomes available (as happened to me with the advent of radioactive tracers) or new avenues open up (as with Ahmadjian's work on synthesis, or field studies on the effects of atmospheric pollution on distribution). When the flow of new discoveries made from these avenues becomes exhausted, a decline sets in until the next new approach appears. One cannot predict when this will occur. But whatever it may be, it is important that it should be such as to keep lichens in the main stream of plant biology and not leave them as an isolated and minor speciality. There are two key general areas in which lichenology is main stream: (a) symbiology; and (b) ecology and biodiversity.

(a) *Symbiology*. Lichens are still regarded as a key example of symbiosis, and they are still the association for which there is the best and most specific picture of the transfer of organic compounds from a photosynthetic symbiont to its

partner, a picture which is much less clear, for example, in mycorrhizas, legumes, or associations between algae and lower invertebrates. For all associations, one major unsolved problem is how existence in symbiosis triggers the release of organic compounds from the photosynthetic symbiont. Biotrophy is the nutritional strategy of half of all fungi, and it could be lichen fungi which hold the key to understanding all this.

Specificity of symbionts for each other and mechanisms of recognition during the establishment of a symbiosis is another central problem in symbiology. Superficially, legume/*Rhizobium* associations appear to be leading the way, although the superabundance of papers dealing with a small number of agricultural plants are of little help to us in understanding the processes in natural communities where legumes are abundant, such as the monsoon forests of the Far East. Mycorrhizas are a problem because of the unculturability of the ubiquitous vesicular-arbuscular fungal symbionts, while alga/invertebrate associations are hampered by insoluble technical problems arising from the fact that most are intracellular. Again, lichens might well hold the ultimate key.

(b) *Ecology and biodiversity.* Lichen - dominated vegetation covers approximately 8% of the earth's land surface, and this must always ultimately give them an important role in global plant ecology. They are by far the most sensitive to atmospheric pollution of any of the major groups of macroscopic plants, and this must add to the importance of their role at a time of growing concern about the impact of human activities upon the natural environment. One of these impacts is loss of biodiversity, and as concern about this extends slowly outside fashionable groups of organisms (birds, tigers, whales, etc) lichens, as a major and unique biological group of fungi, must again become of central concern.

The importance of taxonomy, the amateur, and the British Lichen Society. Whatever new approach triggers the next phase of rising interest in lichens, it is absolutely essential that it be underpinned by a sound and active base of work in taxonomy. The current very serious decline in the number of professional taxonomists for most groups of organisms will cause long term damage to key areas of the future development of biology.

In the particular case of the study of lichens, however, there is a chink of light illuminating this otherwise gloomy scenario. Past history shows that the amateur lichenologist can play a vital role in stemming the tide of decline. The term "amateur" has no pejorative overtones, and refers merely to expert

lichenologists who happened to earn their living by some other profession such as accountancy, school-teaching, farming, etc. In Jack Laundon's excellent account of the formation of the BLS in *Bulletin 77*, he shows that it was Dougal Swinscow, most of whose career was spent on the editorial staff of the *British Medical Journal*, whose initiative led to the formation of the Society (his published papers on lichens later led him to be awarded a D.Sc. from London University). Almost half the members of the first Council of the BLS were amateurs, and it was partly their approach and understanding which has given the BLS its essential tradition of welcome and helpfulness to beginners.

Past history also shows that the study of lichens does not die out during the troughs of neglect that are interspersed between the peaks of interest. The BLS has a key, unique and essential role to play as a well organised resource for protecting lichenology in its current period of apparent academic decline. When worldwide interest in lichens begins to grow again, as it surely will, the existence of the BLS will help its rapid development.

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Sir David Smith

C GEOFFREY DOBBS

Geoffrey Dobbs died at his home in Bangor, North Wales, on 4th October 1996, aged 88. He described himself as a "lichenophilic mycologist", and was one of that tiny band of enthusiasts who kept alive the study of lichens during the lean years of the 1940s and '50s. In the mid-1950s he met Dougal Swinscow and subsequently became one of the founder members of the BLS. In those days maintaining an interest in lichens was no mean feat as they were regarded as an eccentric kind of liverwort. He was soon elected to the BLS Council, and became Vice-President, then President for the years 1968 and 1969. He firmly believed that lichenology should extend and enrich mycology, not divide it, and during his presidential period the first joint symposium between the BLS and the British Mycological Society was held. He also foresaw that if lichenology was to flourish, it must strengthen its links not only with mycology, but also with phycology, bryology and plant ecology. This far-sighted aim has yet to be fully realised but is being actively pursued by the Society.

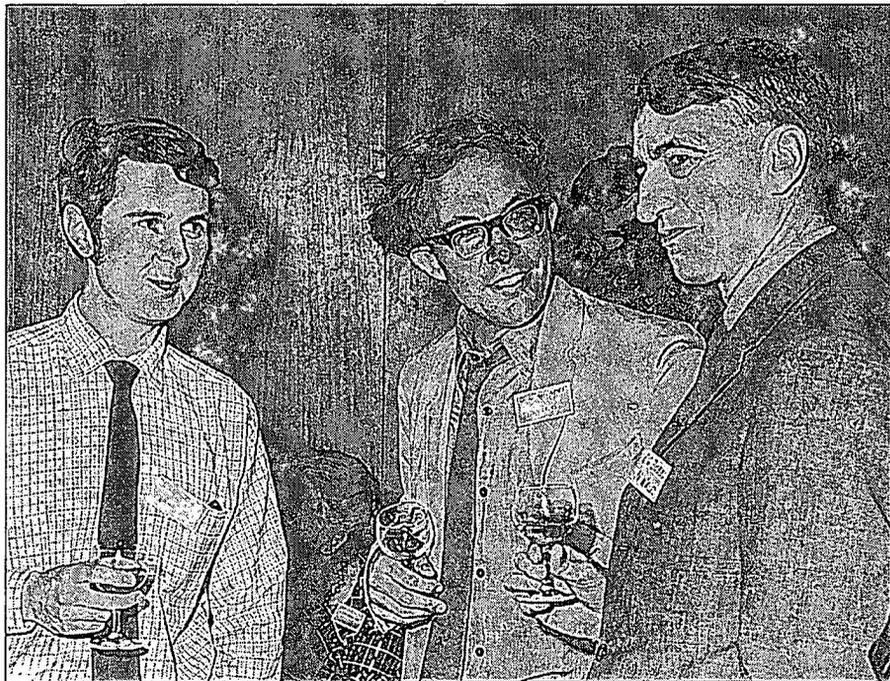
Geoffrey, accompanied by his wife Elizabeth, was a particularly keen attender of field meetings, where he was appreciated not so much for his ability to name lichens, as for his wide-ranging and original mind, his gift as a raconteur, and his love of philosophical discussion. He was a good friend to the *BLS Bulletin*, contributing several articles, including a typically original and memorable review of the 1980 checklist, in which he took the opportunity to remind taxonomists that theirs is a "service industry, not a private mystery for its initiates"; "too many industries exist for the workers rather than the customers". He was a particular champion of subspecific taxa and regarded this rank as grossly under-used in the checklist; in his view raising all "splits" to the rank of species was "taxonomic inflation".

Geoffrey's lifestyle at work and at home was highly individualistic, and as might be expected, his influence on botany students at Bangor, from his appointment in 1947, was considerable; "his original method of teaching was much admired". He was most usually encountered at 11pm at night, entering the lab to start the day's work, or at 9am as he was going home. He claimed that this habit started during the war when firewatching on the university roof. Every week he hosted students at his home. He was a keen wine-maker, and we were treated to several courses of home-made mead of three strengths; quaffing, ordinary, and "liqueur", the latter being stored in an oak cupboard reserved for that purpose. With Elizabeth's home-made bread and cake, patum peperium etc., we were introduced to the benefits of healthy eating, at a time when "wholefoods" were a decidedly minority interest. The Dobbs were indeed often ahead of their time, being strongly interested in social theory,

and long evenings were devoted to discussion of issues such as the ethics of fluoridation of drinking water, social credit, etc. These theories were expounded to a wider audience in *Home*, a published journal produced quarterly from their own home. Geoffrey's professional achievements were in mycology; he was one of the discoverers, if not the first, of soil mycostasis, the phenomenon whereby soils inhibit fungal spore germination.

Geoffrey will be very much missed, as a memorable individual and beneficial influence, who represented a particular type of BLS member, "the professional and amateur". Fortunately, the Society continues to encourage such members, and long may it do so.

Oliver Gilbert and Anthony Fletcher.



Geoffrey Dobbs (right) with his two obituarists, Oliver Gilbert (centre) and Anthony Fletcher (left) at the First International Mycological Congress, Exeter 1971.

PRESIDENTIAL ADDRESS 1996

The year has seen the public profile of lichens raised to new heights, built on firm foundations created by this society. Fine words from the Rio summit of 1992 are now being translated into action. Biodiversity is on everyone's lips and there is no escaping that if the conservation of biodiversity is your aim then lichens have to be treated on a par with the furred and feathered species, which were prone in the past to receive most attention.

All this would be to no avail if we did not have the knowledge to carry the action forward. Thanks to the dedicated work of the officers and members of this society we have an up-to-date checklist of British lichens, a modern flora to aid their identification, a refereeing service to check and confirm records, and a herbarium from which members can borrow material. Workshops are regularly held to help members improve their identification skills. Thanks to Professor Mark Seaward and all who have sent in records we have a distribution data base from which, steered by your Data Committee, a trend-setting atlas is in the course of preparation, which will permit the publication of the first British red data book of lichens. Your Conservation Committee has been particularly active. Individual habitats have been the subject of special study and the Society maintains a register of woodland and lowland heathland sites. Tom Chester and his lowland churchyard group now have an unrivalled data set on this habitat and are having difficulty keeping up with requests for advice. We are improving our ability to record data by providing an ever-growing range of habitat-specific recording cards. By drawing on the experience of our experts it is amazing just how much data can be succinctly collected on a single A4 card. These were used to good effect on our well-organised and well-attended field meetings.

We have also, and with considerable purpose, expanded the *Lichenologist* to receive and make widely available a greater number of papers. The last issue alone included papers which significantly increase our understanding of British montane lichens, of metalophytes, of one of the finest western Atlantic islands and of the distribution, habitat requirements and population trends of one of our rarest and most attractive lichens. The *Bulletin* continues to keep us all in touch with one another, to inform on a wide range of issues, including new notable lichen records and it demonstrates perhaps most importantly of all that lichens can be fun. A new initiative was announced in the last *Bulletin*. Prompted by Oliver Gilbert, the Council decided to actively promote the study of lichens by offering grants. We hope this will stimulate new work or allow projects to be completed which otherwise might not have been. We have raised the profile of the Society by assisting in the establishment

of a new lower plant interpretation facility at Dawyck, an outstation of the Royal Botanic Gardens Edinburgh. I hope some of you will have enjoyed the Radio 4 programme *The Living World*, featuring our past President Dr Brian Coppins with Dr Roy Watling and this very exhibition. Your promotions and publicity committee steered this work through and arranged for our presence at the highly successful BMS centenary exhibition in September. We now have poster and display panels which can be used to promote the Society at other events.

Finally, can I offer thanks to everyone who has contributed to make this year such a great success, and in particular thank your officers and council for all their hard and unpaid labour.

Ray Woods

JANUARY MEETINGS 1996

Evening buffet

Twenty five members attended a sumptuous buffet with cold salmon, cold meats and salads followed by a range of delicious desserts, held for the second time in the history of the Society in the elegant and historical rooms of the Linnean Society, Piccadilly, on the evening of Friday 10 January. Members were treated to two fascinating illustrated talks by Peter Lambley and Mark Seaward on the important influence for British lichenology of the lives of two great lichenologists from the past, Sir James Edward Smith and William Mudd respectively. The executors of Peggy Cayton's estate had kindly donated books for sale, including a complete set of *The Lichenologists*. Members were invited to place bids on slips of paper; good bargains were to be had by all!

1996 Annual General Meeting

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

Exhibitions and video presentation

Following the AGM members were able to browse the exhibits in the library at their leisure over coffee and biscuits. A highlight was the presentation of a video and a demonstration on the conversion of a camcorder to movie microscope by Arthur Lloyd. The video depicted the hidden world of lichens growing on a roadside pavement, including ultra close-up shots of *Lecanora* apothecia so that around half a dozen filled the entire screen! The images were sharp and colour excellent, enabling accurate comparison between dry

and wet apothecia. Arthur's commentary was captivating, describing for instance the function of apothecia as "miniature launching pads for missiles". We were all amazed that this was achieved by the addition of a simple enlarging lens and many who watched were keen to take it up themselves (myself included!). Interested readers should consult Arthur's article (*Bulletin* 79: 35-36). Members were also able to have a chance to test an advanced version of the interactive, illustrated *Parmelia* CD-ROM and key under the guidance of Jeremy Gray. A selection of photographs of lichens were also on display by Jeremy, including the BLS poster designed by Ceri Leigh and display panels mounted on the display boards and a selection of paintings on churchyard lichens by Claire Dalby. Members requiring copies of these for exhibition purposes and/or the display panels are requested to contact Mr Gray. Alan Fryday had an exhibit of new and interesting British montane lichens (including *Arthrorhaphis vacillans*, *Catillaria gilbertii*, *Porpidia ochrolemma*, *Rhizocarpon anaperum* and *Stereocaulon plicatile*) and Howard Fox had on display a recent publication, *The Bogs of Ireland. An Introduction to the Natural, Cultural and Industrial Heritage* by John Feehan & Grace O'Donovan, University College, Dublin, Environmental Institute (ISBN 1-898473-40-4), price £50. This is essential reading for anyone interested in the natural history of peatlands including the lichen communities, information on which had partly been contributed by Howard. Frank Dobson, on behalf of the Richmond Publishing Company, had on display a new version of his laminated A4 sheet on lichens of rocky shores based on Claire Dalby's original poster.

Lecture meetings

On the evening of Friday 10 January there were two lectures about early natural historians who made significant contributions to lichenology. Peter Lambley talked about Sir James Edward Smith and his friends. Smith was born in Norwich in 1759, one of seven children. His father ran a thriving silk and cloth business. Norwich had a tradition as a city of gardens and flowers arising from the influence of Flemish weaver immigrants. It was therefore an ideal environment for his mother to encourage an interest in botany from an early age and as he grew older he was tutored in the city by botanists such as the apothecary, Hugh Rose. Botany was not taught as a separate subject at universities, so Smith went to Edinburgh in 1781 to study medicine. After graduating he moved to London and was friendly with notable botanists of the day, including Sir Joseph Banks. It was whilst having breakfast with Banks that a letter arrived from Linnaeus' wife offering him Linnaeus' books, manuscripts and collections for £1000. Banks declined to purchase them but strongly urged Smith to acquire the treasure. He persuaded his father to advance him the money and in 1784 they were purchased. Thus it was

Norwich money which brought these collections, the basis of the Linnaean system, to Britain. Initially they were held in London but in 1796 Smith married Pleasance Reeve, a Lowestoft beauty and moved back to Norwich with his collections. His house at 29 Surrey Street, which still stands, became a mecca for botanists from Britain and the continent. In 1788 Smith helped to found the Linnaean Society. Norfolk was an important centre for botany in England at that time and it might be said that there was a Norwich school of botanists. Particularly eminent was Dawson Turner, a Yarmouth banker and noted cryptogamic botanist, who wrote *British Fuci* and, with Borrer, the never to be completed *Lichenographica Britannica*. Many of his finds are detailed in Sowerby's *English Botany* of which Smith wrote the text. Other notable botanists included the surgeon, James Crowe, an expert on willows, who owned land near Norwich and at Saham in mid-Norfolk. Many first records for Britain were made from his property, such as *Parmelia acetabulum* and *Chaenotheca chrysocephala*. Young William Hooker was also a native of Norwich and was encouraged to become a botanist by Smith and Turner. Smith died in 1828 and the Linnaean collections were subsequently bought by the Linnaean Society and moved to London.

In the second lecture of the evening, Mark Seaward talked about William Mudd, Yorkshire's most gifted 19th century lichenologist. Mudd, born in Bedale in 1829, was trained in gardening; his second post was at Great Ayton, where he was in charge of T Richardson's garden, residing in Cleveland Lodge, an address which was to become well known throughout the lichenological world. Here he came under the influence of George Dixon, superintendent of the North of England Agricultural School, where Mudd assisted in practical horticultural instruction. Dixon was instrumental in broadening Mudd's botanical horizons, probably instructing him in microscopy, and thereby arousing his interest in lichens. In only a few years, Mudd had become an acknowledged expert, corresponding with many of the leading lichenologists at home and abroad. After less than ten years of study, Mudd had acquired sufficient expertise to write *A Manual of British Lichens*, published in 1861; in this, the first reasonably comprehensive and practical British lichen flora, Mudd followed the example of European lichenologists in recognising the value of microscopic examination of spores for lichen classification and identification. Much of the information used in the compilation of the *Manual*, and most of the specimens contained in the exsiccata *Lichenum Britannicorum* which accompanied it, resulted from his work on the Cleveland lichen flora.

By 1864, Mudd's reputation was such that he was appointed Curator of Cambridge University Botanic Garden. Unfortunately, this did not prove an entirely happy move, and apart from issuing an exsiccata of *British Cladoniae*

in 1865, probably fully assembled before his departure from Great Ayton, his lichenological activities came to an end soon after his arrival at Cambridge. According to Max Walters, formerly Director of the Cambridge Botanic Garden, his "promise seemed to come to nothing in Cambridge. The difficulty may have been partly caused by his state of health, which had apparently been seriously affected by his overwork at microscopy of lichens before he took the Cambridge post; it seems likely, however, that he found the atmosphere of the University and his social position in town and University so alien to his experience that he could make little of it". Alfred Maudslay records how as a student at Cambridge in 1869, he was coached in botany by Mudd, "an illiterate Scotchman [sic] who smoked very strong tobacco and smelt strongly of whisky". Mudd, who resided outside of the Garden, appears to have been a great favourite of the younger members of the University and he instructed those studying for the Natural Science Tripos and the special examination in botany to supplement his annual income which at this time was only £100. After Mudd's death, the Botanical Garden Syndicate decided that the Curator should not do private coaching and ought to devote his whole time and attention to the garden, and that he would perform his duties with greater efficiency if he resided within its precincts

According to William Johnson, author of the *North of England Lichen-Herbarium*, Mudd, when about forty years of age, was tall, well-built and bony, but thin; his complexion was dark, his hair long and black; he was of a nervous, active temperament, with strong religious susceptibilities, and subject to melancholy and depression. J G Baker, commenting on Mudd's death in 1879 (aged only 49 or 50), wrote "if any one will look through this [*Manual of British Lichens*], remembering that it is the production of a man who had to educate himself after reaching mature life, and who at the time that he was engaged upon it, was working hard with lichens for twelve hours a-day, and keeping wife and family upon a wage of something like 25s a week, he will see that the book is really a wonderful monument of energy and perseverance ...He worked most diligently for many years when placed in circumstances where he had very few advantages, and his friends hoped for great things from him when he transferred to a more favourable position [Cambridge] - a hope that now can never be realised."

[Further biographical details are to be found in: Seaward, M R D (1993). William Mudd, the celebrated Cleveland lichenologist. *Proceedings of the Cleveland Naturalists Field Club* 5: 6-10.]

On Saturday, Tony Fletcher began the afternoon lecture programme with a talk entitled "Protected Lichens in the UK". The aim of the talk was (i) to

summarise lichen conservation efforts in the UK, (ii) to draw attention to key events in the history of wildlife conservation generally, and (iii) to present some conclusions for the Society to consider. Organisations with conservation interests can be grouped under four headings: private sector (which includes individuals and special interest groups such as the BLS), local government, national bodies (e.g. English Nature, Scottish Natural Heritage, Environment Agency) and international bodies (e.g. WWF). Information flows between these groups and Tony discussed ways in which societies can influence them. He also outlined landmarks in site and species protection since the formation of the IUCN in 1948. Principal among these were the National Parks & Countryside Act in 1949 and the Conservation of Wild Creatures Act in 1975. The latter brought previous legislation together but was rather "toothless". The Wildlife & Countryside Act (WCA) was a major step forward, driven partly by EC legislation and partly by the Bern Convention. Tony reminded us of the provisions for wild plants in the Act. Lichens (together with fungi and mosses) were officially considered to have roots because the law said that it was illegal to "uproot" wild plants protected by the Act. Twenty-six lichen species were thus protected, being listed in Schedule 8 of the WCA in 1992. This list is now under review and the Minister for the Environment has requested from the Society the names of species that we think should be added to Schedule 8. The Society's Conservation Committee suggested a further 15 species of which four have been accepted (*Alectoria ochroleuca*, *Catolechia wahlenbergii*, *Cladonia convoluta* and *Enterographa elaborata*). It was also proposed that *Cladonia* should be protected from commercial exploitation but this has not been accepted as a realistic threat.

The UN Summit Meeting in Rio in 1992 resulted in the UN Convention on Biological Diversity. Local Agenda 21 is the UK's mechanism for implementing the Convention and one objective of the programme is to enhance the role of the community in conservation projects. Under the aegis of Local Agenda 21 many "Biodiversity Action Plans" are being prepared. These, being at the county level, allow members of the Society the opportunity to input lichen needs locally. The intention is to publish an Action Plan for each threatened species. These will assess current status and threats, propose actions and targets, and provide costings. However, it is not yet clear how targets are to be set or who will pay for the actions proposed. Plantlife has launched "Biodiversity Challenge" which goes some way toward making good this gap. Now we have the lichen Red Data Book, steered by JNCC and Plantlife. This lists lichens that are endangered or threatened in some way. Tony thought that, as a society, we are fairly effective in interacting at the national and international levels, but tended to be "reactive" rather than "pro-active". Whilst recognising that we have a shortage of manpower, especially for doing

such tasks as entering records into data bases, Tony also suggested that perhaps we do not do enough local lobbying. Thus, there is a considerable opportunity for all of us to get involved as individuals with our county Local Agenda 21 Committee to promote lichens.

Next, Brian Coppins talked about "Lower Plant Biodiversity Action Plans in Scotland". These were initiated by Scottish Natural Heritage in 1993; they first considered the 14 species listed in Schedule 8 of the WCA. The specified "Actions" are to re-find these species, assess their population status and conduct research on their ecology. The first 14 species were assessed between 1993-95 and a further 20 species were assessed subsequently between 1995-1997. Action Plans for bryophytes, charophytes and macrofungi were also devised. The Action Plan dossiers for lichens were prepared by Sandy and Brian Coppins and Alan Fryday. Investigation of a species usually began with one of Mark Seaward's distribution maps followed by literature and herbarium research, these often throwing doubts on the accuracy of early records.

The Action Plans for Scotland include the following species. *Pseudocyphellaria norvegica*, a globally threatened species, is doing comparatively well in Scotland and is not a "Red Data Book" species. *Caloplaca luteoalba* is extant in Scotland but receding rapidly: it occurs mainly on old roadside elms and has a doubtful future as the ravages of Dutch elm disease progress northward. This and other lichens of wayside habitats (e.g. field edge sites) are difficult to protect by the designation of SSSI status to the site. A single old ash tree by a disused saw-mill in Angus is the only extant locality for *Thelenella modesta* in Britain; its absence from nearby ash trees is puzzling. Similarly, *Catapyrenium psoromoides* is known only on one old ash tree on the edge of a nature reserve in Perthshire. Conservation measures have included tree surgery, to increase the stability of the tree, and transplanting the lichen to other ash trees nearby. The transplants seemed to have survived but as yet have not expanded. Again, it is puzzling that the lichen is restricted to a single tree. One of the few remaining trees hosting *Caloplaca flavorubescens* was blown down in a gale in October 1996. *Pannaria ignobilis* occurs occasionally on small to medium roadside and stream-side trees (especially ash) in the Highlands; many of its sites have a precarious future if the extension of road improvement schemes continue.

Schismatomma graphidioides usually occurs on single trees but at two sites in Scotland it was found on 20-30 oaks and 40+ oaks and beech, respectively. Brian suggested that these sites might represent the "world HQs" for this species. *Bryoria furcellata* occurs in four native pinewoods, growing mainly

on birch and pine: it is doing so well at one site that it can now be found on deer-fencing! Sites for the aquatic species *Collema dichotomum* include the Rivers Ericht and Isla. It is a delicate species growing to a depth of 80 cm beneath the water surface, with only the uppermost colonies becoming exposed to air when the river levels are low. *Gyalecta ulmi* is apparently now extinct as an epiphyte in Britain, but persists on calcareous rocks at one English locality in Northumberland, and at seven sites in Scotland (mostly on calcareous conglomerate). At all the Scottish sites it appears that *G. ulmi* always occurs on shaded under-hangs with a north to easterly aspect where it avoids direct wetting. *Pseudocyphellaria lacerata* occurs in an SSSI in need of management to prevent scrub invasion. *Ramalina polymorpha* is under threat in south Scotland on basalt outcrops where it is in danger from such activities as trampling, arable farming, quarrying and from gorse invasion. *Peltigera malacea* occurs in sand dunes at three localities in Britain. At Culbin Forest, the populations are mainly beside forest roads; they seem to be doing well despite occasional disturbance from track maintenance, thus suggesting a requirement for disturbance and a supply of fresh sand and gravel.

Several arctic or alpine species have been the subject of study by Alan Fryday: These include *Catolechia wahlenbergii* (major population on Ben Nevis), *Cladonia stricta* (the "twiglet lichen", occurring locally in the Cairngorms), *C. maxima* (Ben Nevis and Cairngorms), and *Alectoria ochroleuca* (on north ridges of the Cairngorms). These species are to varying extents threatened by increased skiing and other leisure developments in the Ben Nevis and Cairngorm Ranges. *Lecanora achariana* is a Schedule 8 species, newly discovered in lochans and streams in northwest Scotland. *Aspicilia melanaspis* was re-found after 36 years at its single site by a lochan in a remote spot in west Sutherland. The project has had several bonuses, including Alan's discovery of *Arthrorhaphis vacillans* (new to Britain) while investigating *Gyalideopsis scotica*.

The final talk of the afternoon by Neil Sanderson was entitled "New Forest Woodland Lichen Conservation by Accident". The New Forest is one of the most important areas of semi-natural vegetation in northwest Europe. It consists of a mosaic of old woodlands, heathlands and old pastures. Of particular importance as lichen habitats are the relics of ancient woodland. Neil summarised the historical and ecological factors that have led to their current status. The woodlands west of Lyndhurst are on land that has probably always been afforested and must always have been primary in cover. They were once dominated by oak, lime and hazel but now contain mainly beech, oak and holly. The general pattern of woodland has probably been fairly stable since the Bronze Age. As a Royal Forest the New Forest functioned to provide meat for the King and was a source of taxes by way of fines for breaking

the Forest Laws. Up until the 16th century many woodlands were pollarded but otherwise were exploited little apart from small scale felling of exceptionally large timbers. During the 16th century the woodlands began to be exploited more systematically and extensively as a source of timber for naval yards. By the 19th century all Royal Forests had been enclosed, except the New Forest because here the common areas were too valuable. Landowners, commoners and conservationists together all fought the pressures to enclose and as a result it remained a deer forest until 1851. In this century the 1950s were the most dangerous years because of pressures to extend forest plantations, but since 1971 the Forest has enjoyed considerable protection.

The primary structure of the New Forest was determined by the grazing of domestic livestock by commoners. The operation of continuous grazing is a particularly important factor in shaping the structure of woodland communities. Typically the woodland is composed of tall trees at a density of c 70 per hectare, forming a partly closed canopy and resulting in much indirect light on the woodland floor. Flood plains and valleys in the forest have a rich ground flora despite the grazing pressures. In some areas parklands have developed where grazing has suppressed regeneration, while in others withdrawal of grazing has allowed regeneration and reversion to woodland. There has been much survey work undertaken in the New Forest since 1974 on such problems as the effects of withdrawal of grazing. Regeneration can occur, however, even if grazing pressures are high. Usually, trees are allowed to die and decompose naturally *in situ*.

There have been 344 epiphytic lichen species recorded since 1976, 60 of which are indicator species. Many species common in the Forest are rare outside. The richest community of interest is the *Lobarion* in which *Lobaria virens* and *L. pulmonaria* are doing very well and the crustose elements are particularly important. However, *Pannaria* spp. and *L. amplissima* are now largely absent. The second richest community is found on acid bark where *Parmelia minarum* is associated with uncommon species such as *Parmelia horrescens* and *Ochrolechia inversa* together with species of *Cladonia* and *Thelotrema*: a community related to the *Parmelietum laevigatae*. On very old oaks *Chaenotheca* spp. and the *Lecanactidetum* community are characteristic and important. Mesic bark carries *Pertusarietum amarae* with some specialists such as *Pertusaria velata*. The *Pyrenuletum nitidae* community occurs on beech together with *Catillaria laureri*, forming a community that is believed to be a transitional stage between the *Pyrenuletum nitidae* and the *Lobarion*. *Enterographa elaborata* occurs on one naturally damaged tree. In the BM there are several specimens of this species from the New Forest dating back to before 1850 suggesting that it may have

been more common in the past; perhaps it was a species associated with pollarded trees. The *Graphidietum scriptae* occurs on smooth bark with a particularly unusual form on holly. Nearly all trees >3m in girth have indicator species on them but many species are scattered across a relatively small number of trees. Most major stands have been aged. Of 92 ancient woodland species studied; only 6 were widespread in woods of 19th century origin while 14 others occurred but were scarce. In contrast, 45 species are found to be equally frequent in stands that have developed since clear felling in the 18th century as in undisturbed pre-18th century stands. Finally, 21 species were found to be confined to undisturbed old growth stands of pre-18th century origin. Strikingly, these included all the species characteristic of the *Lecanactidetum premneae*.

Neil believes that these findings suggest that, in the relatively unfragmented conditions of the New Forest, all ancient woodland communities, with the exception of the *Lecanactidetum premneae*, recolonized within 200-300 years. The *Lecanactidetum* appears to require at least 400 years to recover. Langley Wood is 2.5 km from nearest New Forest woodland; it is a pasture wood that was felled in the 18th century yet it does not contain *Lecanactidetum premneae* or many of the other New Forest rarities. This could be evidence that fragmentation of woodland stands is detrimental to the spread of many of the rare New Forest lichens. Within the woods, indirect light and grazing are probably crucially important factors. In one enclosure studied, lichen species diversity has fallen commensurate with an increase in holly. Recreational pressures can also have adverse effects too, e.g. trimming trees near caravan sites on the grounds of safety.

The New Forest indicates that lichen diversity is greatest where woods are left to develop under natural conditions, including extensive grazing. The implications of this for conservation and woodland management need to be considered in the future.

William Purvis and Peter Crittenden
(with considerable input from the authors of the lectures)

OFFICERS' REPORTS

Secretary's report for 1996

The British Lichen Society has had an extremely active year promoting and advancing the study of all branches of lichenology. The public profile of lichens has never been higher; biodiversity is on everyone's lips and that includes lichens thanks to the members of this Society. We are increasingly working together in partnership with other societies and organisations. For instance we teamed up with the British Mycological Society to celebrate their centenary at the Royal Horticultural Society Old Hall, Vincent Square, 25-28 September, the largest ever exhibition on fungi in Britain. Here we displayed our new BLS poster designed by Ceri Leigh and display panels, attracting many new members. Our society also donated funds towards establishing a cryptogamic reserve at Heron Wood, Dawyck, an outstation of the Royal Botanic Garden Edinburgh.

We joined forces with the Linnean Society on Friday 5 January 1996 to hold a joint buffet and lecture meeting in their elegant and historical rooms in Burlington House, and on Saturday, 6 January, the Annual General Meeting was held at the same venue. In the afternoon a lecture session was devoted to the theme "Lichens and Mineralisation". Council met on three occasions in January, April and September. Major field meetings were held in Aberystwyth, Killarney, Slapton Ley in Devon and Grange over Sands in Cumbria, ably led by Steve Chambers & Alan Fryday, Howard Fox, Peter James, Oliver Gilbert and Brian Fox. A successful *Parmelia/Ramalina* Summer Workshop led by Peter James was held at Slapton Ley, Devon. I would like to thank all the leaders and organisers for their tremendous effort. There have been a great many other activities by members of BLS Committees, as for example the production of a further fascicle of maps (*Cladonia*), and the near completion of a CD-ROM on *Parmelia*.

Two issues of the *Bulletin* were produced by Dr Crittenden totalling 120 pages. BLS members have received six bumper issues of *The Lichenologist*, amounting to over 100 pages per volume, produced under the Senior Editorship of Dr Brown. The last volume, featuring UK lichen biodiversity, was dedicated to Oliver Gilbert on the occasion of his 60th birthday. BLS members are getting excellent value currently from *The Lichenologist* and we owe a special debt of gratitude to Dr Dennis Brown and his editorial team for their extremely hard work. Members are reminded that they are now able to freely search and browse journal abstracts on the internet as indicated on the back of *The Lichenologist*. I am sure we can look forward to promoting the work of the Society still further. Indeed the Society now has its own web page produced

by Jeremy Gray with membership details and there is no doubt that our various activities will be greatly enhanced by the use of this medium in the future.

I would finally like to thank the retiring Officers, Dr Francesca (Ishpi) Blatchley, Mr Peter Earland-Bennett, Mr Peter W Lambley and Dr Francis Rose for their hard work and look forward to working with those officers newly elected.

The Society's membership continues to grow and is at an all time high - we currently have 587 members taking *The Lichenologist*. We note with sadness the deaths of Frank Brightman, Peggy Cayton and Geoffrey Dobbs, three loyal members who had done much to assist the Society over the years.

William Purvis

Conservation Officer's report for 1996

A productive year was marred by the sad death of Frank Brightman on 20th June. Frank was our first Conservation Chairman, acting from 1962 to 1980, assisted by Fred Haynes as Secretary. He also held the reins in 1987-1989, when conservation officers were hard to find. His efforts established the BLS's reputation as a leading plant conservation society. Among his other major achievements was the first list of sites of conservation importance for lichens in the UK. He is sadly missed. It was proposed by the Committee that the forthcoming Red Data Book (RDB) be dedicated to his memory.

The Committee works to annual targets. Target 1, standardising recording methods, was met in part by the preparation of mapping cards and the energetic efforts of the Churchyards Project team. A specialised Woodland Mapping Card with accompanying notes for users was produced, following the pattern established by the other specialist habitat cards, for example Churchyards. A list of phorophyte abbreviations (names of tree substrata) to be used on mapping cards was approved for publication in the *BLS Bulletin*. Target 2, completion of woodland and maritime survey reports, proved difficult to achieve owing to computer system changeovers and the lack of labour available for data entry and editing. However, a preliminary list of maritime indicator species is in preparation, and many new woodland survey reports have been received, to be incorporated into the database. Target 3, to complete a network of regional representatives, is ongoing; volunteers are welcomed at any time.

Considerable work on the British Lichens RDB was done by various committee members, especially Brian Coppins and Oliver Gilbert, working from the draft by Nick Stewart and Judith Church of Plantlife. Its launch was expected in February 1997. Local lichen RDBs are being prepared by some members (Northants, Leicestershire).

The Conservation Officer's work with Plantlife/Link and JNCC's plant conservation working groups has continued. Both have prepared plant conservation strategies with strong lichen representation. The JNCC's volume appeared in 1994, Plantlife/Link's in 1996. Of special interest is their emphasis on species and habitat action plans. "Species Champions" - persons to oversee Lichen Species Action Plans - were requested by DoE following our recommendations to protect a short list of seven species named in the Biodiversity Steering Group Report (1995). Several committee members are obliging with this task. The national press has contacted us with the intention of profiling some of the seven species. The middle list is now being edited by ourselves to select species suitable for further action plans. The JNCC Wildlife and Countryside Act Quinquennial Review was reconvened in 1996. We proposed 15 species to be considered for special protection under Schedule 8, adding to the 26 already listed. We also asked for all species of *Cladonia* sect. *Cladina* to be protected against commercial exploitation, especially those on lowland heathland which are increasingly seen as decorations in craft shops. Sadly, only four species were accepted and *Cladina* was rejected on the grounds that insufficient evidence for its threatened status exists. The committee would therefore like to hear from you if you can provide evidence of decline or threat. Fortunately, our alarm over the proposal to de-schedule *Lecanactis hemisphaerica*, was heeded, and this rare and ecologically interesting species remains on the list. Finally, the EC Habitats Directive proposal to add a further 75 sites to the list of Candidate Special Areas for Conservation was appraised and commented upon. Numerous omissions were rectified.

The Conservation Officer attended the British Bryological Society meeting "International Bryophyte Conservation", which assessed the new (1994) IUCN categories for evaluating species rarity and threat. This led to a proposal for a BLS workshop on "Lichen Habitat Management" which will prepare a handbook for distribution to site managers. Hopefully it will take place in autumn 1997. Meanwhile, Neil Sanderson has already written a management guide to protect lichens in heathland.

New BLS survey continues mainly within the Churchyard Project team; virtually all lowland 10-km squares now include at least one churchyard survey. Considerable work has gone into preparation and distribution of a Schools Education Pack and many enquiries on churchyard issues have been dealt with by Tom Chester's able team. Major threats to sites continue, including New Forest caravan parks, and power station proposals in Leicestershire and Pembrokeshire.

Finally, I would like to thank all members of the hardworking Conservation Committee, and all those BLS members who have helped us during the year.

Anthony Fletcher

Curator's report

Very few members made use of the BLS Herbarium during 1996. It has, however, been found to be particularly useful to members who have recently begun to study lichens and who find that access to accurately named material is difficult. Requests from such members would therefore be particularly welcome. The herbarium is primarily for study purposes, so where examination requires the removal of apothecia or performing a chemical spot test members might consider, where appropriate, using BLS specimens in preference to depleting important voucher specimens in regional or national collections.

The arrangements for borrowing specimens are as follows: any member may request a loan by sending a list of desired species to me at Dundee Museums and Art Galleries, Albert Square, Dundee DD1 1DA. Specimens, preferably in batches of 10-20 packets, will then be sent by post. The only cost involved is the reimbursement of postage. Return should be within one month of receipt unless otherwise arranged.

The larger, foliose taxa are particularly well represented with the more critical, recently recognised crustose species less so. I would therefore welcome additional specimens of these to augment the collection. Finally, although the collection is mainly of British specimens, limited numbers of foreign specimens, especially of species which are very rare in Britain, would also make useful additions.

Richard Brinklow

FROM THE ASSISTANT TREASURER

Late payments

If subscriptions are not received by 1 January, it is likely that you will miss the main mailing of the first part of *The Lichenologist*. On payment of your subscription after 1 January I notify Academic Press (usually immediately by e-mail) and your name is entered on a "catch-up" list. It may then be several weeks before you receive the "catch-up" copies. I regret that this is out of my hands. As previously requested, please send claims direct to Academic Press.

Late arrival of publications

I have the impression that *Bulletins*, and therefore subscription renewal forms, are taking a very long time to reach our furthest members, particularly those "down-under". If this is the case please let me know and I will see what I can

do to speed things up.

BLS Web page

Apologies for the incorrect address published in the last *Bulletin*. Those of you who have an internet connection will have realised that www. had been omitted. The full correct address is:

<http://www.argonet.co.uk/users/jmgray/>

I hope that, by the time you read this, the page will have been updated with general information, details of meetings, officers of the Society and publications, including news of the Atlas fascicles and possibly a demonstration of the new *Parmelia* CD-Rom.

Jeremy Gray

[Please note Jeremy's new address and telephone number given on inside front and back covers - Ed]

A LISTING OF BRITISH LICHEN PHOTOGRAPHS

Many years ago I produced a list of British lichen species of which colour photographs appeared in commonly available text books. Each item indicated the appropriate book and carried a symbol representing the writer's personal appraisal of the photograph. This has now been updated to include all species, British or foreign, and covers the two recent Wirth volumes (1 & 2) with a grand total of about 700 species.

The list runs to 7 double-sided pages. If you are interested in having a copy please send three second class stamps (no SAE), to cover costs, and address with postcode. There may be a week or so delay while I attempt to remember how the computer program works. Send to D H Smith, Westland, Westfields, Kirkbymoorside, York, YO6 6AG.

Don Smith

NEW HONORARY MEMBERS

Frank Dobson

Honorary membership is awarded to members who are distinguished lichenologists and have rendered valuable service to the Society. Few could be more worthy of this honour than Frank Dobson, who has worked tirelessly for the Society for over 20 years. Appointed as a beginner's referee in 1977, he served on Council twice before becoming the Assistant Treasurer in 1984. In 1989 he took over from Noel Tallwin and has remained treasurer ever since. During this period the Society's finances have gone from strength to strength. But this is also no ordinary Treasurer. He has proved to be "Mr Fixit" for all manner of problems that a voluntary society faces. He has also regularly led excursions and awakened and guided new recruits into lichenology through his many field courses. His book *Lichens, An Illustrated Guide*, is still, after 18 years, the standard for anyone taking up an interest in the lichens of the British Isles. The Society has indeed much to thank Frank for and can justly place him amongst the ranks of its honorary members.

Ray Woods

Oliver Gilbert

It gives me very great pleasure to congratulate Oliver Gilbert on his election as an Honorary Member of the British Lichen Society.

I have known Oliver well for over 35 years, since the time when he was Deputy Warden at Malham Tarn Field Centre. He is of course a botanist with a wide knowledge of vascular plants and bryophytes, as well as of lichens, and has an "ecological eye" amounting to genius in the field. He edited the *BLS Bulletin* with great skill for a number of years, and his literary abilities and humour made it into a most entertaining and informative publication. He has served both as the Society's President and on its Council and various committees. He produced a lichen flora of Northumberland (in 1988) which has formed a model for others to follow, and contains a vast amount of ecological and historical information of compelling interest.

Perhaps Oliver's main contribution to lichenology in recent years, however, has been his pioneering work on the lichen floras of our British mountains. This was an area that had been very much neglected hitherto by lichenologists. His very readable papers, together with collaborators such as Brian Coppins, Alan Fryday and Brian Fox, revealed how interesting and important are the alpine lichen floras and communities at such places as Ben Lawers, Caen Lochan and the Cairngorms. He was able to organise, initially quite by good

luck, access by helicopter to some remote sites, so saving much valuable time and wearisome climbing.

Oliver's other valuable contributions on special habitats have included his papers on the lichens of chalk grassland, of Magnesian Limestone, and in calcareous streams; his energy and enthusiasm are remarkable. Such is his delightful personality, and his ability as a speaker, that for many of us, the appearance of his name on the list of lecturers at a meeting means that one must be present to hear what he has to say!

Francis Rose

David Hawksworth

Official recognition of David Hawksworth's outstanding contribution to lichenology by the British Lichen Society is long overdue. He has worked tirelessly for the Society, more particularly as Council Member, President (1986-87) and Editor of *The Lichenologist* (1971-88). He has also played a major role in national and international lichenological affairs, not only in his capacity as Director of the International Mycological Institute since 1983, but also as President of the International Mycological Association (1990-94; now honorary), of the International Union of Biological Sciences (1994-97) and of the British Mycological Society (1990), and as a member of other influential committees. His published output is enormous and includes many key works on the taxonomy of lichens and lichenicolous fungi. For this and his other contributions to science he has been honoured by the conferment of the Linnean Society's Bicentenary Medal in 1978, a DSc by Leicester University in 1980, a professorship of Reading University, an honorary doctorate of Umeå University in 1996, and, not least, a CBE in the 1995 Honours List. It is indeed fitting that the BLS should also recognize his many achievements.

Mark Seaward

IMPACTS OF AIR POLLUTION ON *LOBARIA* SPECIES

Introduction

There have been a series of articles recently discussing the status of the *Lobarion* community and potential impacts of air pollution, especially acid rain and ammonia (Hawksworth, 1995; Bowen 1996, Day, 1996). Given the previous work that I undertook on acidification effects and my current interest in ammonia I believe that there are a number of points of interest that I might usefully add to this discussion.

Acid rain and *Lobaria* in Borrowdale

With colleagues at Imperial College I undertook some detailed field studies at a range of sites differing in their levels of acid deposition. One of these was Seatoller Wood, 8km further up Borrowdale than Great Wood, discussed by Hawksworth (1996) and Day (1996). Unlike Great Wood, Seatoller no longer maintains *Lobaria* species on oak trees (though they remain on pollarded ash). As part of the study, I undertook an examination of bark chemistry for oak and ash trees with or without *Lobaria* spp. (Farmer *et al*, 1991a) in both woods. This found that the bark of those trees with *Lobaria* spp. was not only of a higher pH, but also had higher base cation contents (i.e. it could continue to buffer incoming acidity). As both oak and ash bark is not exfoliating (i.e. outer surfaces remain in place for years), there is a limit to how much acidity the bark can buffer. Presumably the lower rainfall at Great Wood (and hence lower total acid input), resulting in a lower pressure on bark buffering capacity, is one reason for the survival of *Lobaria* on oak here.

A long-term seasonal study of incident rainfall and stemflow at Seatoller Wood in comparison to a wood on the shores of Loch Sunart (where there is similar total rainfall, but excellent *Lobarion* development) showed that whereas the oak bark at Loch Sunart buffered occasional acid episodes in rainfall, the stemflow from Seatoller Wood tended to be more acid than the rainfall (Farmer *et al*, 1991b).

We also undertook some transplant experiments to see whether the decline in *Lobaria* spp. in Seatoller Wood may have been a result of some past pollution episode (unrecorded) and not owing to present conditions. Our results (Farmer *et al*, 1992) found that transplants of all four native species died over a number of years, although control transplants elsewhere survived and grew well.

Ammonia

Although our study focused on the potential impacts of acidification itself, we also examined tissue nutrient concentrations in epiphytes (Farmer *et al*, 1991b). In particular we found that tissue nitrogen levels in the moss *Isothecium myosuroides* were higher from oak trees at Seatoller Wood than at sites in SW Scotland or Loch Sunart. It is known that nitrogen deposition is higher in Cumbria than in these Scottish locations. However, the implications of this

higher nitrogen loading for epiphytes in general, and *Lobaria* spp in particular (some of which have nitrogen-fixing photobionts), is unclear. The deposited nitrogen will be a combination of both nitrate and ammonium.

Bowen (1996) makes some interesting comments on ammonia in remote areas and its interaction with sulphur dioxide. Of all the gaseous pollutants that we are generally concerned with, ammonia is the one which will deposit most rapidly. In other words, its concentration from point sources (e.g. animal units) will decline rapidly depending on the surfaces available for deposition. Studies have also shown that its deposition is enhanced by the presence of sulphur dioxide (and *vice versa*).

There have been relatively few studies of the potential impact of ammonia on lichens, although a number of us will have seen suspicious looking occurrences of green algal growth on bark in locations with animal units or dense stocking, (see report of the Wageningen meeting, *Bulletin* 73: 16). This deserves further attention. We are used to considering pollutant emissions from industrial and transport processes, which rarely impact in "remote" areas. Animal units may spring up in such areas and we must be sure that they do not pose a threat to lichen communities which have otherwise survived the ravages of industrial pollution. Readers may take some comfort in the fact that the new EU Directive (1996) on Integrated Pollution Prevention and Control requires regulation of intensive animal units in the same way as with industrial units. Hopefully this will result in some clearer assessment procedures for determining ammonia impacts and in consideration being given to areas which may be sensitive to such developments.

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Andrew Farmer
English Nature

WILLIAM BORRER (1781-1862)



Unveiling of commemorative plaque to William Borrer at Potwell, Henfield, Sussex by Mark Seaward. (Photo: David Nicholls, Selsey).

In November 1996, a commemorative plaque to William Borrer was unveiled at Potwell, Henfield, where the distinguished Sussex botanist was born. The event was marked by a programme of events hosted by Henfield Museum and the West Sussex County Council which included an illustrated lecture by Mark Seaward on "William Borrer's botanical genius", displays organised by the British Lichen Society, Sussex Wildlife Trust, Sussex Botanical Recording Society, Tottington Woodlanders and West Sussex County Council's Countryside Management Unit, and visits to the site of Borrer's former garden and to the Henfield Museum, which contains a Borrer display.

William Borrer was born at Potwell on 13 June 1781, although most of his childhood was spent at the family home of Pakyns Manor, Hurstpierpoint. He married in 1810 and returned to Henfield in December 1811 to a house built for him by his father at Barrow Hill. Here he remained until his death on 10 January 1862.

After his marriage, Borrer received a handsome annual allowance from his father, a wealthy corn merchant and landowner. While he assisted in the family business from time to time, Borrer had plenty of leisure to devote to botany, including the establishment of a remarkable collection of living plants. By 1860 he had assembled about 6600 different British species and hardy exotic plants in his Henfield garden, travelling the British Isles in search of rarities and exchanging plants with friends. Sadly, Borrer's home and garden at Barrow Hill no longer remain. However, many of the plants he grew there, besides his correspondence and herbarium were moved to Kew Gardens after his death.

Borrer was one of the most capable and astute of the early 19th century British botanists and his ability was quickly recognised: he was elected a Fellow of the Linnean Society in 1806 and of The Royal Society in 1835. He knew many of the leading botanists of the day, with whom he maintained a voluminous correspondence. Although he published very little under his own name, many of the major botanical books of the day acknowledge his considerable help and pay tribute to his unrivalled knowledge of British plants. He had a particular flair for notoriously difficult groups such as roses, brambles, willows and the lower plants, especially the lichens. His contribution to Turner and Dillwyn's *Botanist's Guide*, the texts he prepared for Smith and Sowerby's *English Botany* and Hooker's *Supplement*, and his co-authorship of *Lichenographia Britannica*, bear ample witness to his insight into lichen systematics. Undoubtedly, Borrer justly deserves to be known as the "Father of British Lichenology".

Mark Seaward

CHURCHYARD NEWS - HITTING THE HEADLINES!

As I was beginning to prepare this piece for the March deadline, lichens were suddenly rising like giant and proliferating podetia above their more usual low profile and being featured in the *New Scientist* and at least two national newspapers with such eye-catching headlines as "Is there life after death for lichens?", "The Litmus Plant" and "Lichens: back against the wall." There was also a short note in the January edition of the *Biological Sciences Review* specifically on the Churchyards Project and a longer article of my own on the saxicolous lichens of lowland churchyards in the February edition of *British Wildlife*. This was most pleasingly set out by the editor, Andrew Branson, a BLS member, and much enhanced by Jeremy Gray's photographs and a Claire Dalby plate of ten common churchyard species. Claire is one of a rare breed of artists who can create something which is, at one and the same time, a thing of beauty and a most useful tool.

This sudden high profile has inevitably led to an increased post-bag. Hardly a day goes by without an enquiry and one begins to realise how much latent interest there is out there beyond the membership of the Society. Trying to respond helpfully and positively to students who seemingly expect to become lichenologists overnight is, at times, irksome and one rarely hears from them ever again. There are notable exceptions and it is always gratifying to see a seed of interest develop into a fully blown project with a tangible result. Recently, I have received copies of such research projects from a local GCSE student, an A level student from Maidstone, and university students from the Open University, Manchester and Middlesex. One of these researchers, Bridget Pearson, is now a member of the Society.

In order to cope with this ever increasing surge of interest, I have had to resort to a standard reply and a four-page churchyards fact sheet which attempts, albeit briefly, to answer some of the queries and indicate other sources of information. This will be updated at the end of January each year and will then be available to anyone interested on receipt of a stamped-addressed envelope. Before you send for one, I must emphasise that it is really intended for non-members and is unlikely to contain any information you don't already know!

Two out of every three letters received are concerned with lichens as pollution indicators. It is more than a quarter of a century since The Hawksworth-Rose scale for epiphytes was published and a similar scale for saxicolous churchyard lichens is long overdue. I have recently produced a tentative list and it needs to be thoroughly tested in the field and revised accordingly. Again, for the

usual SAE, it is available to colleagues who live in urban areas or indeed anyone else who would like to help to refine it.

Telephone calls are easier to deal with. One within the past half hour was from English Nature. As you may know, "English Nature" (to quote from the accompanying blurb) "and the Countryside Commission, with help from English Heritage, have produced a map of England which depicts the natural and cultural dimensions of the landscape." A written profile is being produced for each "character area" and the call was from Kristoffer Hewitt who is writing the profile for the Yardley-Whittlebury Ridge in Northamptonshire. He had heard that some of the local churchyards were rich in lichen species and wanted further information. The map and accompanying profiles are being put on to CD-ROM and it would be good both for the Society and the profile of lichens if other members could have some input into their own local "character areas". A similar opportunity to increase awareness at a local level is being provided by the proliferation of Biodiversity Action Plans. In a few days time, I shall be attending an environmental forum alongside community volunteers, businessmen and the Minister for Rural Affairs (who is also our local MP) to consider "What Future for Northamptonshire's Wildlife?".

My preparations for the *British Wildlife* article obliged me to check and update the national site and species lists prepared in the early days of the Churchyards Project. You may remember that in *Bulletin 69* a "Top Twenty" list of churchyard sites was published and then revised a year later in *Bulletin 71*. When the first list was produced in 1991, we knew of nine sites in the whole of Britain with more than 100 species. Now, in lowland England alone, this total has been achieved in 52 churchyards and in the precincts of two cathedrals. The species total for all substrata compiled in 1990 was 407. The current figure is exactly 600, more than a third of the British list. When the lowland saxicolous lichens were given star ratings in 1993 (*Bulletin 73*), 340 species were listed and this has now increased to 364. The following gives a more detailed breakdown of figures:

Saxicolous Lowland	364
Other Substrata Lowland	68
Total Lowland	432
Saxicolous Upland Only	99
Other Substrata Upland Only	69
Total Upland Only	168
Total Saxicolous	463
Total Other Substrata	137
Grand Total	600

Some species, of course, grow on more than one substratum and so, in order to make the figures conveniently add up, the saxicolous totals in the table include species also growing on other substrata, whereas the totals for other substrata exclude saxicolous lichens. Bryicolous species are included in the saxicolous totals. The list includes a small number of species for which I am unable to trace substratum and location details. These are: *Caloplaca flavorubescens* (cort), *Chrysothrix chrysophthalma* (cort), *Cladonia parasitica* (lig), *Cladonia subulata* (?), *Farnoldia jurana* (sax), *Hymenelia (Ionaspis?) lacustris* (sax), *Lecanora pulicaris* (lig), *Leptogium subtile* (cort), *Schaereria fuscocinerea* (sax), *Staurothele hymenogonia* (sax), *Thelidium impressum* (sax), *Usnea esperantiana* (cort), *Verrucaria xyloxena* (ter), *Veizdaea rheocarpa* (bry). The probable substrata are in parentheses. Please can anyone supply the missing details?

At this juncture, could I also make a plea to members who may have churchyard species records or site lists hidden away in notebooks perhaps from the dim and distant past to pass them on. I am also trying to build up a resource collection of churchyard articles (including such allied subjects as the geology of building stone), research projects, newspaper cuttings, slides, photographs and the more interesting or rarer species. Any such offerings will be gratefully received and made available for other members to borrow.

Threats to churchyard lichens come in many strange guises. These have included a scheme to recycle ancient memorials, a tombstone cleansing agent purporting to be environmentally friendly and an out-of-work student purporting to be a tombstone cleansing agent. The most recent and perhaps the most insidious threat in the long term comes from, of all bodies, the Conservation Foundation, with the blessing of Professor David Bellamy and the Archbishops of Canterbury and York. This is the Yews for the Millennium project. The plan is to provide every parish in England with a new yew tree from 2000 year old stock and for this to be planted either in the churchyard or another site chosen by the parishioners. The siting of these trees in many of the more species rich churchyards will need careful consideration if significant damage to the valuable lichen communities is to be avoided.

Tom Chester

LETTER FROM AN OVERSEAS CORRESPONDENT

Czech Lichenology in 1996

The most important event for all lichenologists in 1996 was the IAL3 Symposium in Salzburg (September 1-7), excellently organised by R Türk. It was the largest meeting of lichenologists ever in the world (about 300 participants). Aided by the relatively low travelling cost, IAL3 attracted the participation of several young people, including students, from the Czech Republic (6 persons in total and 5 posters were presented).

The most important activities of the Bryological and Lichenological Section of the Czech Botanical Society last year were two field meetings. The spring meeting was held between 18-21 April in the Orlické hory Mountains on the border with Poland. Warm and sunny weather, relics of snow and lots of fully flowering *Leucojum vernum* and *Petasites albus* were a pleasant backdrop to this successful meeting organised by J Halda. There were 25 participants including some new friends from abroad (2 from Bratislava, Slovakia and 3 from Graz, Austria). The traditional autumn meeting was held between October 14-17 near Jihlava. A workshop with lectures and posters introduced the 9th Bryological and Lichenological Days. During the three excursions that followed the most interesting localities in the vicinity were visited: "Zaječí skok" rock in the Jihlava river valley, nature reserves of old beech forests (Špičák Mt.) with relics of a typical epiphytic lichen flora (e.g. *Pyrenula nitida*, *Bacidia rosella*) and old stone walls with boulders containing iron, colonized by ferrophilous lichen species (e.g. *Lecidea silacea*, *Acarospora sinopica*). We were very pleasantly surprised by the large number of participants (40!), mostly young people.

A seminar for school teachers "Lichens and bryophytes of natural habitats" was held between September 20-21 in Chaloupky village near Jihlava. J Horáková and I Novotný each gave a lecture on lichens and bryophytes, respectively. Two issues of the *Bryonora* newsletter were published in 1996.

During the year the total number of members of our Section increased to 75. In 1996 Z Palice graduated at Charles University, Prague (his thesis was on the lichen flora of the Šumava Mts); he is now a post-graduate student at his alma mater.

Jiří Liška and Zdeněk Černohorský

AUTUMN MEETING 1996: GRANGE-OVER-SANDS

The Berners Close Hotel exuded an air of decaying elegance which is the hallmark of a suitable headquarters as it usually means large rooms, a lenient management, and few other guests. The bedrooms were equipped with wireless rather than TVs, hand bells had to be rung to summon the staff from the depths; on the first evening supper was delayed while the cook, a volunteer fireman, was called out; there were prunes for breakfast. No one was complaining; at only £20 for dinner, bed and breakfast several members stayed for a fourth night.

The object of the meeting was to investigate the limestone around the head of Morecambe Bay, so mornings were spent clinging to convex crags or picking our way over pavements while enthusiasm and chisels were at their sharpest. Afternoons were spent dealing with other habitats, or sometimes we returned to the morning one, as detailed survey work is too often sacrificed for variety. All the best sites were nature reserves and had managers who are becoming sensitive to collecting, so at most we had to behave ourselves. Gait Barrows NNR was an exception, we had a collecting permit, but resisted the temptation to load up our vehicles with rockery stone as the pavement is protected by a preservation order. Just as well, as we discovered swards of *Synalissa symphorea* which none of us had seen before.

I make it a rule never to visit sites before a meeting so that there is a sense of discovery which occasionally turns to a sense of disappointment. The only useless site was Sea Wood, a reserve owned by the Woodland Trust and renowned for its large trees. It was so unbelievably dull that to find anything other than *Lepraria incana* was quite a challenge. Our optimistic president spent an hour there but to no avail. On Sunday evening Brian Fox thought he had left Vanessa behind at Dallam Deer Park, and guilt-stricken, imagined her plodding back in the dark late for supper. He later plied her with red wine to make up for his scare, though really she had been asleep upstairs all the time.

As an insurance against bad weather Jeremy Gray brought his Women's Institute talk to which he treated us one evening. It kept us spellbound, so much so, that he was pressed to give another the next night. Autumn meetings require a close network of pubs for recuperation, as the weather cannot be relied on; we had a tempest forecast but it never came, so we only needed them for refreshment. To speed up service at the Ship Inn, Arnside, we donned windproofs and ate Sunday lunch sitting at picnic tables while one of the highest tides of the year lapped at our feet. The sea was a major feature of the weekend. At Humphrey Head it raced in over the sands, as fast as a galloping horse, and tossed greedy brown spray at our ankles. Later we discovered it had all but washed the hub-caps of our cars parked on the saltmarsh. Like Canute we had forgotten the danger while locked in ardent discussion.

HEADLEY HEATH FIELD MEETING

Headley Heath in Surrey is situated on the dip slope of the North Downs and contains a wide variety of substrata in a small area. The higher parts of the heath are Calabrian estuarine gravels on which acid heathland now dominates. Several narrow valleys formed by glacial meltwater cut through these gravels exposing the underlying chalk. In the lowest parts of these valleys alluvium has been deposited.

The Heath has a long history of grazing, and photographs from the 1930s show it as open heathland with a few scattered trees. One of the best records of the tree cover on the heath during this period is found in the high quality air photographs taken by the Luftwaffe at the start of the war! During the 1939-46 war it was used as a training area by Canadian troops. Their tanks and bulldozers ploughed up the soil and this allowed the spread of birch across much of the heath. The growth of these trees and scrub is now controlled by cutting and grazing.

It was on this site that a small group of 8 members of the BLS met for the Sunday field meeting after the AGM. The meeting had nearly been cancelled due to snow and a layer of freezing rain that had fallen the day before. A rapid overnight thaw left the ground very muddy and dense low cloud covered the upper heath leaving us dependent on the assistant warden, Gwilym Jones, to guide our way in the fog.

What had been a good acid heath near the car park has become a dog exercise area and the resulting nutrient enrichment has allowed grasses to grow up to smother most of the terricolous lichen species. Away from the car park there are still good stretches of more open heather-heathland. One of these was examined and was found to have a rich *Cladonia* flora of at least 11 species. It was also on this site that fertile *Cetraria aculeata* was found. There are no rocks on the Heath and the only saxicolous species that were recorded were from the gravels. The species on these pebbles included *Buellia aethalea*, *Porpidia crustulata* and *Rhizocarpon obscuratum*. Not even a concrete post was located, but such sites almost certainly exist on the Heath, so there must be a number of saxicolous species still to be recorded.

The oak trees in this upper area looked ancient but were in fact only about 30 years old. These trees had the typical lichen flora of this part of Surrey with a range of *Parmelia* species including *P. perlata* and also the usual *Xanthoria* species encouraged by nutrient enrichment.

The lower parts of the steep-sided wooded valleys were investigated next. Much of this region is deep scrub with few lichens. Some old pollards also proved to be disappointing. In the more open valley bottom the lichen cover was much richer, especially on a row of mature willows, where *Usnea subfloridana* was common and a specimen of *U. cornuta* was also found. *Phaeographis dendritica* was found on one of the willows, an uncommon lichen in this part of Surrey. An elder near the base of the valley had abundant *Chaenotheca brachypoda*.

There was no time left to examine the chalk grassland above the valley but *Cladonia rangiformis* was noted in passing. The party was hurried on its way by three large highland cattle that loomed up out of the mist. These appeared to be friendly and are certainly making their contribution to keeping the Heath open by grazing the seedling trees and scrub.

Lunch was purchased from a very well stocked refreshment caravan in the car park. Fortified by food and, after thanking Gwilym for his assistance, the group moved on to Victorian Headley church. This is only a short distance from the sheltered Mickleham church which is so famous for the richness of its lichens. Headley is, however, on the top of the ridge and therefore exposed to any polluted winds. Improvements in the lichen flora were recorded with *Parmelia saxatilis* being found on the brick boundary wall where it was not present ten years ago. There were six species of *Parmelia* recorded from the churchyard, a good total. Other interesting species found included, *Bacidia egenula* on the north wall of the church, *Polysporina simplex* on a granite memorial, *Thelidium decipiens* on an oolitic tombstone, *Micarea erratica* on the top of a sandstone tomb and, possibly, *Buellia badia* on the slates of the north east gate. All members of the group, but especially Chris Hitch, must be thanked for the preparation of the site lists.

The thick fog persisted and there was an icy wind blowing across the exposed churchyard. It was noticeable that the more sheltered side of the church received most attention and that when the first group member left for home, the rest soon followed. Nevertheless, the short visit produced a list of 67 species which is good for an exposed churchyard in East Surrey.

Frank Dobson

Lichens recorded at Headley Heath

Anisomeridium nyssaegenum
Bacidia arnoldiana
B. naegelii
Baeomyces rufus
Buellia aethalea
Caloplaca citrina
Candelariella aurella
C. reflexa
Cetraria aculeata
Chaenotheca brachypoda
Chrysothrix candelaris
Cladonia chlorophaea
C. coniocraea
C. crispata
C. fimbriata
C. floerkeana
C. diversa
C. furcata
C. gracilis
C. macilenta
C. portentosa
C. pyxidata
C. ramulosa
C. rangiformis
C. squamosa
C. subulata
Cliostomum griffithii
Evernia prunastri
Hypogymnia physodes
H. tubulosa
Lecanora conizaeoides
L. dispersa
L. expallens
L. saligna
L. symmicta

Lecidella stigmataea
Lepraria incana
Micarea denigrata
M. erratica
M. nitschkeana
Mycoporum quercus
Parmelia caperata
P. glabratula
P. perlata
P. revoluta
P. saxatilis
P. subaurifera
P. subrudecta
P. sulcata
Peltigera rufescens
Phaeographis dendritica
Phlyctis argena
Physcia adscendens
P. tenella
Placynthiella uliginosa
Platismatia glauca
Porpidia crustulata
P. tuberculosa
Ramalina farinacea
Rhizocarpon obscuratum
Scoliciosporum chlorococcum
Trapeliopsis flexuosa
T. granulosa
Usnea cornuta
U. subfloridana
Verrucaria muralis
Xanthoria candelaria
X. parietina
X. polycarpa

St Mary's Church and churchyard, Headley

Acrocordia salweyi
Arthonia lapidicola
Aspicilia calcarea
A. contorta
Bacidia egenula
B. sabuletorum
Buellia aethalea
B. ocellata

B. punctata
Caloplaca citrina
C. flavescens
C. teicholyta
Candelariella aurella
C. medians
C. vitellina

<i>Catillaria lenticularis</i>	<i>Phaeophyscia orbicularis</i>
<i>Cladonia coniocraea</i>	<i>Physcia adscendens</i>
<i>C. fimbriata</i>	<i>P. caesia</i>
<i>Diploicia canescens</i>	<i>P. dubia</i>
<i>Diplotomma alboatrum</i>	<i>P. tenella</i>
<i>Hypogymnia physodes</i>	<i>Physconia grisea</i>
<i>Lecanora albescens</i>	<i>Polysporina simplex</i>
<i>L. campestris</i>	<i>Porpidia tuberculosa</i>
<i>L. chlarotera</i>	<i>Psilolechia lucida</i>
<i>L. conizaeoides</i>	<i>Rinodina gennarii</i>
<i>L. dispersa</i>	<i>Sarcogyne regularis</i>
<i>L. expallens</i>	<i>Sarcopyrenia gibba</i>
<i>L. muralis</i>	<i>Scoliciosporum umbrinum</i>
<i>L. polytropa</i>	<i>Thelidium decipiens</i>
<i>Lecidella scabra</i>	<i>Toninia aromatica</i>
<i>L. stigmathea</i>	<i>Trapelia coarctata</i>
<i>Lepraria incana</i>	<i>T. placodioides</i>
<i>Leproloma vouauxii</i>	<i>Verrucaria baldensis</i>
<i>Micarea denigrata</i>	<i>V. glaucina</i>
<i>M. erratica</i>	<i>V. hochstetteri</i>
<i>Parmelia glabratula</i> subsp. <i>fuliginosa</i>	<i>V. macrostoma</i> f. <i>furfuracea</i>
<i>P. mougeotii</i>	<i>V. muralis</i>
<i>P. revoluta</i>	<i>V. nigrescens</i>
<i>P. saxatilis</i>	<i>Xanthoria calcicola</i>
<i>P. subaurifera</i>	<i>X. candelaria</i>
<i>P. sulcata</i>	<i>X. parietina</i>

SYMPOSIUM: TAXONOMY, EVOLUTION AND CLASSIFICATION OF LICHENS AND RELATED FUNGI

The British Lichen Society, in conjunction with the Systematics Association and The Linnean Society of London, is holding a symposium devoted to the taxonomy, evolution and classification of lichens and related fungi. It will be held as an extension to the BLS AGM between 9-11 January 1988. The Organising Committee, comprising Mats Wedin and William Purvis, has invited a number of speakers to the sessions, and we believe that the preliminary titles given in the programme reflect the enormous current progress in lichen systematics at all taxonomic levels

The invited speakers include well-established lichen taxonomists, as well as post-graduate and post-doctoral students at the forefront of lichen systematics. The Symposium aims to present an integrated picture of the status of modern systematics and hopefully will provide a valuable opportunity to assess the

challenges that need to be addressed in the future. The preliminary titles of the talks suggest that this will be a most exciting meeting. We have already had an overwhelming response both from invited speakers, and from lichenologists who were sent a first circular by electronic mail inviting them to express interest in attending.

The Symposium will be held in the rooms of the Linnean Society, Burlington House, Piccadilly, London, W1V 0LQ. It will include three half-day sessions each focused on practical and theoretical aspects of lichen systematics at different levels of organisation. All friends and colleagues are herewith cordially invited to participate in the event!

For planning purposes we need to gauge the extent of the likely interest in the meeting. Accordingly, we would appreciate hearing from those people interested in participating before September 30th. If you would like to be included in our mailing list then please contact Mats Wedin at the address below. You will then receive more detailed and definitive information in the near future.

A registration fee of £30 will be charged to cover administrative costs, including programme, abstracts and other conference papers, and refreshments. Participants should arrange accommodation themselves but we will include a short list of hotels in different price categories in the information pack that will be sent out to all responding to this circular: a wide range of accommodation is available to suit all pockets. Cheap charter flights (including hotel) are available from many European airports and overseas participants may find these advantageous.

Please note that those members wishing to attend the AGM, but not intending to participate in the formal proceedings of the Symposium, are cordially invited to attend the Saturday afternoon lectures at no charge.

PRELIMINARY PROGRAMME

Friday 9 January

Registration

The Dougal Swinscow Memorial Lecture: Rosmarie Honegger (Zürich):
The lichen symbiosis: what is so spectacular about it?

Evening Reception

Saturday 10 January

British Lichen Society Annual General Meeting

SYMPOSIUM: TAXONOMY, EVOLUTION AND CLASSIFICATION OF LICHENS AND RELATED FUNGI

I. The taxonomy of species and infra-specific taxa

Philippe Clerc (Geneva): *Species-delimitation and species concepts in Usnea*

Katilleena Lohtander (Stockholm): *Lichen species pairs*

Per Magnus Jørgensen (Bergen): *What shall we do with the blue-green phototypes?*

Paul Bridge & David Hawksworth (Egham): *What molecular biology has to tell us at the species level in lichenised fungi*

Symposium Dinner

Sunday 11 January

II. The concept of concepts - the circumscription of taxa, particularly at the generic level

Ana Crespo, O F Cubero & R Noya (Madrid): *A molecular approach to the circumscription and evaluation of the genera segregated from Parmelia s. lat.*

Martin Grube & Ulf Arup (Graz): *Molecular systematics of Lecanora subg.*

Placodium

Rikard Sundin (Stockholm): *The Arthonia story, or how to find monophyletic groups in large genera*

Pier Luigi Nimis (Trieste): *A critical appraisal of modern generic concepts in lichenology*

Leif Tibell (Uppsala): *Principles and prejudice in lichen classification*

III. The integration of lichens into the system of the Fungi - the taxonomy at and above family level

Soili Stenroos (Helsinki): *Evolution and taxonomy of the stipitate lichens*

Katarina Winka (Umeå): *Are there lichenised Leotiales?*

Thorsten Lumbsch (Essen): *Systematic studies in Lecanorales suborder Agryriineae*

Gerhard Rambold (Munich): *The distribution of selected diagnostic characters in Lecanorales*

Andrea Gargas (Copenhagen): *Phylogeny of lichen-forming fungi within the Eumycota*

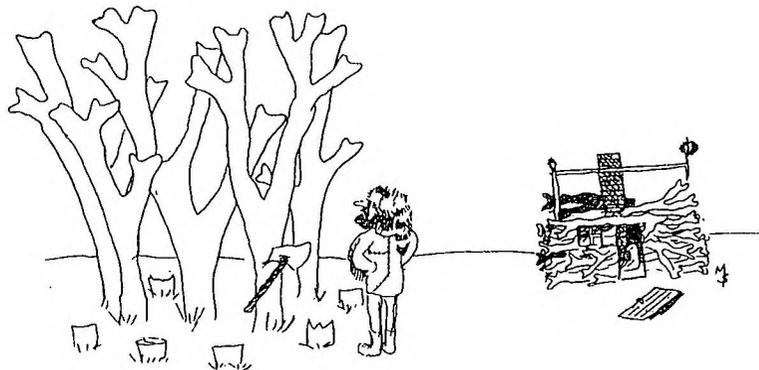
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ICONES LICHENUM UNIVERSALIS: SPECIERUM NOVARUM FIGURAE

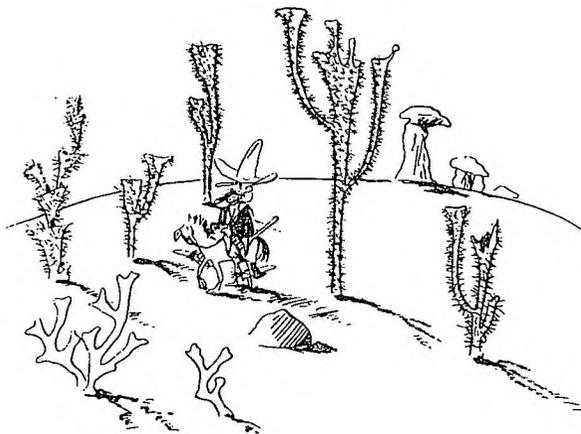
By Jolanta Miądlikowska & Michał Skakuj



Cetraria domestica
EUROPE: Poland



Platysma arborescens
NORTH AMERICA: Canada/Yukon



Cladonia saguariformis
NORTH AMERICA: USA/Arizona

LICHENS AND HABITAT MANAGEMENT

Workshop - September 3-6 1997

The workshop aims:

- (1) To allow members with experience of lichen habitats to discuss how best to advise on site management and ensure their continued lichenological interest.
- (2) To produce a publication on Habitat Management for Lichens, for widespread distribution.

A common enquiry which we receive is how to manage a site to ensure that lichens are conserved and promoted. We know however, that considerable expertise exists among BLS members which has never been made public. So this workshop is an opportunity for us to share our experience, contribute ideas, and have them distributed in a publication. This will be inexpensively produced so that it can be disseminated as widely as possible, for example to Wildlife Trusts, site managers, landowners, agencies, etc., with active conservation interests.

The format for the workshop will be of morning presentations and discussions, followed by afternoon excursions to view and discuss lichen management problems. We are promised that some of North Wales' NNRs will be made open to us. In the evenings, we will discuss and develop our ideas, leading to firm action plans. Participants will be expected to write relevant sections of the publication, preferably having a draft ready for use in the workshop.

The workshop will start on Thursday morning, 4th September and finish on Saturday at 1 pm. Accommodation for 40 persons has been booked at the brand new Student Halls at University College Bangor, from Wednesday night to Saturday afternoon, at an inclusive cost of £117 plus VAT. It should be possible to arrange to stay on for the weekend afterwards if desired. The ensuite rooms are very modern and comfortable, together with a large meetings room with audio-visual aids, and of course, there will be a bar. It is hoped that we can negotiate grants allowing reimbursement of at least some costs, at least on a needs basis.

We would like to include as many habitats as possible, but still await offers of presentations on some key ones. So, volunteers to lead discussions are welcomed. Inclusion of habitats we know little about would also be welcomed.

For further details, special needs and booking forms, please contact me at, Holly Hayes Environmental Resource Centre, 216 Birstall Rd, Birstall, Leicester, LE4 4DG (0116-267-1950, FAX 0116-267-7112).

Anthony Fletcher

IDENT: A COMPUTER-AIDED MULTI-ACCESS KEY FOR THE IDENTIFICATION OF LICHENS OF THE NEGEV DESERT

Introduction

The majority of keys for lichen identification are based on the dichotomous principle: thesis - antithesis. This requires knowledge of particular characters of the specimens being identified. Absence of even one of these characters often impedes identification of the family to which the lichen specimen belongs. For instance, the first differentiating characters in the key to the families of Israeli lichens are those of the fruiting bodies (Galun, 1970). This makes it difficult to identify sterile species, such as *Ramalina maciformis* and *Diploicia canescens*. Furthermore identification of atypical specimens may require the trained eye of an experienced specialist in the group.

In some cases, particularly for the purposes of ecological monitoring and assessment of biodiversity undertaken by non-specialist taxonomists, it is convenient to use a multi-access key for lichen identification. This incorporates an automatic selection process for species meeting certain conditions at each step of the identification process. Such ideas led to the elaboration of an interactive identification computer program.

Morse and Edwards (1995), in their review of computer species identification, did not mention lichens among the groups to which computer-assisted identification has been applied. In fact, there are a number of lichen keys using computers in different ways. To the best of our knowledge the only computer-aided lichen key described in periodicals to date is *LICHENOLOG* (Zeltyn & Pchelkin, 1993). It was developed for epiphytic lichens from the Kandalaksha (Kola Peninsula) and Gissar (Central Asia) nature reserves. However, several others exist. Gerhard Rambold and D. Triebel have created a key to the lichenized and lichenicolous Ascomycetes, a subset of which (relating to 270 lichen genera found in Germany) can be downloaded from the Internet Web site: <http://www.botanik.biologie.uni-muenchen.de/botsamml/lias/modules.html>. Keys for certain lichen genera (c 20) can also be downloaded from this site. These interactive keys have been created using the DELTA software ("Description Language for Taxonomy") (Pankhurst, 1991; T A Paine, pers. comm.). The number of genera for which the keys are available is expected to increase to 780. In addition, Darrell Wright (pers. comm.) has written the dBASE IV.5 random access MS DOS-based key to *Bryoria* in North America. Bruce Ryan (pers. comm.) has used the Word Perfect 5.1 (WP51) text processor to input computer keys to North American genera and species and then employed WP51 random access tools to search species' descriptions for selected terms. Fred Rhoades (pers. comm.) has developed

the multi-access key PC-TAXON for US Pacific Northwest foliose and fruticose lichen genera and for species of *Hypogymnia*, *Peltigera*, *Bryoria* and *Cladonia*, and Harrie Sipman has loaded his computer-aided key to lichen genera of the Guianas (c 190 genera) on the Internet Web site: <http://osfl.gmu.edu/~thollowe/lichkey2.html>. Most of the existing keys are available from the authors or directly from the Internet. Development of new computer-based keys for lichens is expected in the near future.

Negev lichen identification with multi-access key *IDENT*

The *IDENT* program is written in the CLIPPER computer language for databases necessitating the use of an IBM-compatible PC. The program works with two dBASE files: a **table of species** and a **table of characters**. To compile the table of species for the Negev lichens, we used the following publications: Galun & Reichert (1960), Galun (1966, 1970), Poelt (1969), Kopachevskaya *et al* (1971), Dobson (1992), and Insarov & Insarova (1995). We also used our own unpublished observations in the region.

Each line of the table of species contains a species name and its description. The description comprises a number of character state values which are abbreviated and entered in shorthand form. If the character receives a number of states for one species, up to three versions distinguished by commas are allowed. For instance, *Caloplaca aurantia* var. *aurantia* may have both plane and convex apothecia on the same thallus. In the table of species it appears as "P, Cx" in the column "Shap_fr bo" (Shape of fruiting bodies). The table contains 49 lines (one for each species described) and 41 columns (one for each lichen character employed).

Nineteen of the 41 characters can be determined in the field. These are substratum, thallus type, colour of thallus centre, colour of squamules and lobe margins, structure of thallus periphery in crustose species, shape and surface of lobes for foliose, fruticose and placodioid species, colour and shape of apothecial margin, etc. To apply other characters, such as colour of the thallus undersurface or of the medulla, reactions in chemical tests, structure of the excipulum, number of spores per ascus, etc, one has to take specimens into the laboratory. About half of the lichen species recorded on calcareous rocks in the Central Negev can be identified in the field (Insarov & Insarova, 1995). The table of characters contains abbreviated character names, full character names and comments. Abbreviated character names are used in the table of species. Comments, located in a subsidiary file, contain all character state values and their abbreviations.

While running the program one should enter character state values one at a

time. At each step the number of species in the list should decrease. Only those species possessing both the currently selected character state and those previously selected, remain in the list. Thus if the number of species remains the same, the last chosen character does not discriminate among the remaining species. To select a discriminative character one should consult the table of species. If the number of species become equal to zero at a given step, then it is necessary to return to the previous step and delete the last character state value added. Identification is finished when only one species remains in the list.

It is possible to change the number of lines and columns in the table of species. If new species are found in the Negev they can be added to the tables and, consequently, in the computer-assisted key. The same is true for the number of characters (columns) and their state values. If necessary, their number can be increased or decreased, and the state value of characters can be modified. It is possible to construct similar tables for other regions or groups of organisms. The program *IDENT* accommodates any table of species and characters in dBASE format.

Discussion

Use of the *IDENT* program is easier than the DELTA-based and PC-TAXON keys, or expert systems. On the other hand, these alternative keys provide more opportunities for the user, such as species comparison, etc. *IDENT* allows non-specialists to identify Negev lichens in the interactive mode and facilitates identification of specimens lacking in a character that is otherwise essential for identification using a conventional dichotomous key. It therefore reduces the frequency with which the identification process requires an analysis of fruiting bodies and spores, a task which in many cases is beyond the scope of a layman. The key can also be used in conjunction with Galun's (1970) book on the Negev lichens.

The *IDENT* key is available from the senior author upon request.

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NEW, RARE AND INTERESTING BRITISH LICHEN AND LICHENICOLOUS FUNGUS RECORDS

Contributions to this section are always welcome. Please submit entries to Chris Hitch, The Whin, Wadd Lane, Snape, Saxmundham, Suffolk IP17 1QY, in the form of species, habitat, locality, VC no, VC name [from 1997, nomenclature to follow that given in the Appendix of New, Rare and Interesting in *Bulletin 79*, which is based on *Biological Records Centre, Instructions for Recorders*, ITE, Monks Wood Experimental Station, Abbots Ripton Huntingdon, PE17 2LS, 1974], Grid Reference (GR), altitude, where applicable, in metres (m), date, comments and recorder. An authority with date after the species is only included when the record is new to the British Isles. *In the interests of accuracy, typescript is much appreciated. Please use only one side of the paper. Copy should reach the subeditor at least a fortnight before the deadline for the Bulletin.*

Abrothallus suecicus: on thallus of *Ramalina farinacea* on *Quercus*, Cawdor Wood near Nairn, VC 96, East Inverness-shire, GR 28/84-49-, September 1996. Second Scottish record.

B J & A M Coppins

Arthonia didyma: on boles of coppiced *Corylus* in wood, with *A. spadicea* (pycnidia only), Sudbourne Great Wood, VC 25, East Suffolk, GR 62/41-53-, August 1996. Determined B J Coppins.

P M Earland-Bennett

Arthopyrenia fraxini: on young canopy twigs (c 4-5 years old) of *Quercus petraea*, collected from trees felled as part of management thinning, Coed Simdde Lwyd NNR, Cwm Rheidol, VC 46, Cardiganshire, GR 22/71-79-, alt 200m, 1995. New to Cardigan. Confirmed A Orange.

S P Chambers

Aspicilia moenium (Vain.) G. Thor & Timdal (1992) [Syn. *A. excavata* G. Thor & Timdal (1986)]: on sides of concrete blocks at edge of disused quarry. Traprain Law, East Linton, VC 82, East Lothian, GR 36/58-74-, alt 100m, September 1996. New to British Isles. For description and illustrations, see *Lichenologist* 18: 179-182.

B J Coppins

Belonia russula: on mildly basic, igneous rock face, Clogwyn y Garnedd, Snowdon, VC 49, Caernarvonshire, GR 23/61-54-, alt 650m, October 1996. New to Wales. Also recorded from here were *Stereocaulon synphycheilum* and

Vestergrenopsis elaeina, both new to Wales. These three records confirm the assessment made in *Lichenologist* 26: 321-341 that the low montane lichen vegetation of North Wales is equal to that of many areas of Scotland.

A M Fryday

Buellia leptoclinoides: frequent on upright sarsen stones, Stonehenge, VC 8, South Wiltshire, GR 41/12-42-, April 1994. New to south England in an inland habitat; it is normally strictly maritime. Possibly confused previously at Stonehenge with *Buellia subdisciformis*, which was not found in 1994.

P W James and F Rose

Buellia violaceofusca: on trunks of several mature oaks (*Quercus*). Cawdor Wood, near Nairn, VC 96, East Inverness-shire, GR 28/84-49-, alt 80m, September 1996. Third British record.

A M & B J Coppins

Byssoloma marginatum: on *Quercus* in Eridge Sandrocks Reserve, VC 14, East Sussex, GR 51/56-36-, February 1997. New VC 14 Record. Determined B J Coppins.

S R Davey

Caloplaca cerinella: on exposed *Crataegus* bole in quarry with *Parmelia subaurifera*, *Xanthoria parietina*, and *Caloplaca obscurella*, VC 25, East Suffolk, GR 62/ 33-43-, December 1996. New to the VC25. Determined J R Laundon.

C J B Hitch & P M Earland-Bennett

Caloplaca luteoalba: for details see under *Rinodina pityrea*

A M & B J Coppins

Caloplaca obscurella: on sandstone rocks by river, with *C. holocarpa* agg, and *Lecanora dispersa* agg, Warden Rocks, by River Tyne, Hexham, VC 67, South Northumberland, GR 35/91-67-, June 1995. Confirmed B J Coppins. Apparently the first saxicolous report of this species.

O L Gilbert

Catapyrenium squamulosum: on compacted sandy soil, probably lime-enriched, amongst *Calluna*, on former airfield, Greenham Common, VC 22, Berkshire, GR 41/50-64-, 1994. Confirmed O Breuss. New to VC 22.

R Porley & F Rose

Catapyrenium squamulosum: on ancient mortar on ledge of south-facing Roman wall, Richborough Castle, VC 15, East Kent, GR 61/32-60-, June 1995. New to

VC 15, and the first record on stonework for southeast England.

F Rose

Catillaria alba: on trunk of *Quercus* with *Schismatomma graphidioides*. Falls Wood, Invermoriston, VC 96, East Inverness-shire, GR 28/42-16-, alt 45 m, June 1979. Pycnidia only. Fourth British record.

A M & B J Coppins

Celothelium ischnobelum: on smooth *Quercus* bole in old woodland, Llyfnant Valley, VC 46, Cardiganshire, GR 22/73-97-, alt 90m, 1996. New to Cardigan. Confirmed A Orange.

S P Chambers

Chaenotheca ferruginea: on rock, Eridge Sandrocks Reserve, VC 14, East Sussex, GR 51/56-36-, February 1997. New substratum for British Isles (we believe). Determined B J Coppins.

F Rose & S R Davey

Chaenotheca phaeocephala: in crevice on dry bark of *Quercus* in parkland, Llanerchydol Hall, Welshpool, VC 47, Montgomeryshire, GR 33/20-07-, December 1995. New to Wales.

A Orange

Chaenotheca stemonea: on ancient pollard oak (*Quercus*), Maesllwch Castle, Glasbury, VC 43, Radnorshire, 32/16-40-, February 1996. New to Wales.

A Orange

Chaenothecopsis nigra: on very dry, brittle bark in recesses on ancient *Quercus* trunk, Vaynor Park, Berriew, VC 47, Montgomeryshire, GR 33/17-00-, December 1995. Confirmed L Tibell, August 1996. New to Wales.

A Orange

Chromatochlamys muscorum var. *octospora*: encrusting *Frullania* on old *Fraxinus* with *Sticta sylvatica* in strip of old woodland, Pwllpeiran, near Hafod, VC 46, Cardiganshire, GR 22/77-74-, alt 220m, January 1996. Both species and variety new to Cardigan. Determined H Mayrhofer.

S P Chambers

Cladonia alpina (Asahina) Yoshim. (1968): on peaty soil in spruce plantation, Ffridd Dôl-y-moch, near Trawsfynydd, VC 48, Merionethshire, GR 23/76-33-, January 1992. Confirmed T Tønberg, 1995. New to British Isles. A red-fruited species containing barbatic acid, \pm thamnolic acid, and

porphyritic acid; podetia often branched, granular-sorediate to corticate (especially when fertile). Since detected in two other localities in north Wales. Well-branched specimens are noticeable in the field, but the morphological distinctions from *C. floerkeana* and *C. macilenta* need further study.

A Orange

Cladonia cariosa: on stony open ground near airstrip of disused airfield, Greenham Common, VC 22, Berkshire, GR 41/50-64-, 1994. First confirmed VC 22 record.

R Porley & F Rose.

Cladonia incrassata: on side of old conifer stump, Binning Wood, Tynninghame, VC 82, East Lothian, GR 36/59-79-, alt 15 m, December 1996. New to southeast Scotland.

A M & B J Coppins

Cladonia norvegica: (i) on *Betula* in woodland, with *Parmelia laevigata*, and on mossy rocks nearby, Afon Mawddach, near Ganllwyd, VC 48, Merionethshire, GR 23/73-26-, July 1996; (ii) on *Alnus* and *Betula*, GR 22/73-27-, July 1996. New to Wales.

A Orange

Cladonia strepsilis: on peaty soil amongst *Calluna* on disused airfield, Greenham Common, VC 22, Berkshire, GR 43/50-64-, 1994. New to VC 22.

R Porley & F Rose

Cornicularia normoerica: poorly developed on six boulders west of the summit, Moelyllyn, VC 46, Cardiganshire, GR 22/71-91-, alt 510m, 1995. New to Cardigan.

S P Chambers

Dactylospora saxatilis: on an indeterminate crust, but *Pertusaria amarescens* close by, Glen Clova, VC 90, Angus, GR 37/29-75-, February 1997. The host thallus reactions are negative except for UV+ pinky-orange reaction. Is the lichenicolous fungus inhibiting thalline chemical production, as these fungi do with spore production when infecting lichen fruits, since normal reactions were found on unaffected thalli close by?

R C Munro & C J B Hitch

Dermatocarpon deminuens Vain. (1921): frequent on marginal boulders, with and below *D. leptophyllodes*, Brown Cove tarn, VC 69, Westmorland with North Lancashire, GR 35/34-16-, alt 620m, August 1996. New to British Isles.

Distinguished from *D. meiophyllizum* by the mid-brown, strongly reticulately veined underside and the lightly pruinose upperside. A widespread species in Scandinavia. Determined A Orange.

S P Chambers & J Gray

Endocarpon pusillum: on soil over chalk of a coastal landslip, Branscombe, VC 3, South Devon, GR 30/2—8—, December 1996. Confirmed B J Coppins.

B Benfield

Eopyrenula avellanae: on old *Corylus* in pasture woodland, Ebernoe Common, VC 13, West Sussex, GR 41/97-27-, 1995. First Sussex record.

N A Sanderson

Eopyrenula avellanae: on *Ilex*, Cawdor Wood, near Nairn, VC 96, East Inverness-shire, GR 36/84-49-, alt 80m, September 1996. First record from eastern Scotland, and first find on a host other than *Corylus*.

B J & A M Coppins

Gyalecta jenensis: for details see under *Petractis clausa*.

F Rose

Lecania cuprea: amongst large calcite crystals in a vesicle in vertical face of basalt crag, north-facing crags of Lawhead Hill, Tynninghame, VC 82, East Lothian, GR 36/60-79-, January 1996, New to southeast Scotland.

B J & A M Coppins

Lecania cyrtellina: on *Sambucus* bole in quarry, Otley Bottom, VC 25, East Suffolk, GR 62/20-54-, December 1996. This is the second Suffolk record, see *Bulletin* 79, p 41.

P M Earland-Bennett

Lecanora ochroidea (Ach.) Nyl. (1896): a revision of material under the name *L. subcarnea* in E revealed three collections of *L. ochroidea*: Valley of the Rocks, Lynton, VC 4, North Devon, GR 21/70-49-, September 1971, collected P Harrold, and April 1988, collected B J Coppins; Hurlstone Point, Porlock, VC 5, South Somerset, GR 21/89-49-, August 1987, collected A M O'Dare. New to British Isles. *Lecanora ochroidea* contains atranorin and norstictic acid and the thallus and apothecia react K⁺ yellow to red (crystals), whereas *L. subcarnea* s. str. contains atranorin and protocetraric acid and reacts K⁺ yellow (sometimes to dull reddish, but no crystals forming). *Lecanora ochroidea* has a more southerly distribution in south and central Europe and the Canary Islands. From the collections in E, *L. subcarnea* s. str. is confirmed from

VCs 69, 70, 81, 90 and 92. Further material needs to be checked so as to elucidate the distribution of these two species within the British Isles. For further information on the *L. subcarnea* group see Dickhäuser *et al*, *Mycotaxon* 56: 303-323 (1995).

B J Coppins

Lecanora pruinosa: (i) on east side of cloister, Salisbury Cathedral, VC 8, South Wiltshire, GR 41/14-29-, 1995, collected F Rose and T W Chester; (ii) on east wall of church, Damerham (Hampshire), VC 8, South Wiltshire, GR 41/10- 15-, 1996, collected F Rose. This species is now well known in south and southwest Britain.

F Rose & T W Chester

Lecanora symmicta: abundant on twigs of *Crataegus* amongst luxuriant *Xanthorion* elements due to piggery and slurry pit close by, Alderton, VC 25, East Suffolk, GR 62/33-43-, December 1996.

P M Earland-Bennett & C J B Hitch

Lecidea promixta Nyl. (syn. *L. pernigra*): on siliceous stones, Ogof Ffynnon Ddu National Nature Reserve, VC 42, Breconshire, GR 22/86-14-, alt 440m, July 1992. New to Wales.

A Orange

Leptogium biatorinum: on calcareous soil in disused quarry, Traprain Law, East Linton, VC 82, East Lothian, GR 36/58-74-, alt 100m, September 1996. Apparently new to Scotland.

B J Coppins

Leptorhaphis maggiana: on *Corylus* on boundary bank, Ebernoe Common, VC 13, West Sussex, GR 41/97-27-, 1995. First Sussex record.

N A Anderson

Lithothelium aff. *phaeosporum* (R.C. Harris) Aptroot (1991): on bark of *Fraxinus* with *Caloplaca flavorubescens*, Kilcheran, Isle of Lismore, VC 98, Argyll Main, GR 17/82-38-, April 1969, collected U K Duncan; specimen in E. New to British Isles. Determined A Aptroot. The genus *Lithothelium* Müll. Arg. (1885), which comprises both non-lichenized and lichenized species, has only recently been reported from Europe, based on collections of three species from Austria (*Herzogia* 10: 71-73). It is distinguished from *Pyrenula* mainly by its asci, which have a distinct ocular chamber. The Lismore specimen has large (c 0.8 mm diam) immersed perithecia with a protruding, skewed, pointed-conical ostiole, and 4-celled, brown, *Pyrenula*-like spores, c 7-29 x 11-12 µm. Unlike

L. phaeosporum, it has \pm equally sized spore lumina. In *L. phaeosporum*, from North America and Austria the middle two lumina are much larger than the outer two (see drawing in A. Aptroot, *Bibliotheca Lichenologica* 44 fig 17). The Lismore specimen is small, but appears to be non-lichenized. Prior to microscopic examination, it is most likely to be confused with *Acrocordia gemmata* or the bark saprophyte *Navicella pileata*: the latter is usually identified by its flattened perithecial apex with a slit-like ostiolar pore.

BJ Coppins

Lobaria pulmonaria: on trunk of roadside *Ulmus*, c 5 km south-southeast of Selkirk, near entrance to North Synton Farm, VC 80, Roxburghshire, GR 36/48-23-, alt 180m, November 1996. An unusual occurrence of this species in an agricultural landscape - perhaps a relict indication of how things used to be! The host elm is still alive, but is likely to be doomed, as most of its neighbours have recently succumbed to Dutch elm disease.

A M & BJ Coppins

Macrophomina pseudeverniae Etayo & Diederich (1996): on thallus of *Pseudevernia furfuracea* on fence post, Milton Wood NNR, VC 89, East Perthshire, GR 37/1—5—, alt 120m, October 1994. New to British Isles. The host was also attacked by *Lichenocodium erodens*.

BJ & A M Coppins

Melaspilea bagliettoana Zahlbr. (1904): on *Fraxinus*, c 7 km south of Tavistock, valley to west of Buckland Abbey, VC 3, South Devon, GR 20/48-66-, April 1991; on *Fraxinus*, Rassal Ashwood NNR, Kishorn, VC 105, West Ross, GR 18/8—4—, 1997. New to British Isles. It grows on "bare" bark and is probably not obligately lichenised. It has tiny, unbranched lirellae c 0.2-0.5 x 0.1-0.2 mm, and hyaline to smoky brown 1-septate spores, 12-14 (-18) x 4.8-6(-8) μ m.

BJ & A M Coppins

Micarea botryoides: on *Diplophyllum albicans* on rock, Eridge Sandrocks Reserve, VC 14, East Sussex, GR 51/56-36-, February 1997. Good fertile material. Determined BJ Coppins.

SR Davey

Micarea intrusa: amongst *Rhizocarpon geographicum* areoles on southwest sloping edge of big boulder, Blease Fell, Blencathra, near Keswick, VC 70, Cumberland, GR 35/30-26-, alt 350m, August 1996. New to England. Confirmed BJ Coppins.

SP Chambers

Micarea pycnidiophora: on rock in Eridge Sandrocks Reserve, VC 14, East Sussex, GR 51/56-36-, February 1997. Unusual substratum.

F Rose & S R Davey

Microcalicium ahlneri: on lignum of standing dead *Quercus* in pasture woodland, Ambersham Common, VC 13, West Sussex, GR 41/90-18-, 1994. First Sussex record.

N A Sanderson.

Mniacea jungermanniae: on shaded mossy Greensand dumps in scythe stone quarry, Blackborough, VC 3, South Devon, GR 30/09-07-, February 1997.

B Benfield

Nephroma tangeriense: on boulders in lichen-rich stream, Afon Ysgethin, Tal-y-bont, VC 48, Merionethshire, alt 170m, GR 23/60-22-, July 1996.

A Orange

Niesslia lobariae Etayo & Diederich (1996): on moribund, water-soaked upper part of fallen thallus of *Lobaria pulmonaria*, Reelig Glen, 5 km southeast of Beauly, VC 96, East Inverness-shire, GR 28/55-42-, alt 60m, February 1997. New to British Isles.

B J & A M Coppins

Ochrolechia inaequatula: on mosses on side of rounded, south-facing outcrop, south side of summit of Traprain Law, East Linton, VC 82, East Lothian, GR 36/58-74-, alt 210m, October 1996. New to the Lothians.

B J Coppins

Omphalina luteovitellina: on crags of Craig yr Allt-ddu, West of Cairn Owen, VC 46, Cardiganshire, GR 22/71-87-, alt 350m, July 1996. New to Cardigan.

S P Chambers

Opegrapha glaucomaria (Nyl.) Källsten (1994) [syn. *O. maculans* (Arnold) Hafellner]: on thallus of *Lecanora rupicola* on north-facing basalt crags, Lawhead Hill, Tynninghame, VC 82, East Lothian, GR 36/60-79-, January 1997. New to British Isles. The rounded apothecia are produced in conspicuous black circles of arcs on the thallus of the host.

B J & A M Coppins

Opegrapha lithyrga: with *Bacidia trachona* in underhang of north-facing basalt crag, Lawhead Hill, Tynninghame, VC 82, East Lothian, GR 36/60-79-, January 1996. New to the Lothians.

B J & A M Coppins

Parmelia crinita: on mossy turf (presumably on cliff top). Isle of May, Fourth Estuary, VC 85, Fife, GR 36/6—9— or 37/6—0—, 1908, collected W Evans; specimen in E. Although this important, easterly record was present on the map in the 1982 Atlas, it mysteriously disappeared in the recent set of *Parmelia* maps!

B J Coppins

Pertusaria hemisphaerica: on top of sandstone boundary wall of churchyard, Whitwell, VC 10, Isle of Wight, GR 40/52-77-, 1995. Apparently the first churchyard record.

F Rose

Petractis clausa: (i) on horizontal limestone slab in churchyard, Overton, VC 12, North Hampshire, GR 41/51-49-, 1995, collected F Rose and K A Sandell; (ii) on chest-tomb with *Gyalecta jenensis* in churchyard, Old Burghclere, VC 12, North Hampshire, GR 41/46-57-, 1996, collected F Rose. Both species very rare in southern churchyards.

F Rose & K A Sandell

Phaeophyscia endococcina: closely associated with *P. sciastra* on marginal boulder, Brown Cove tarn, VC 69, Westmorland, GR 35/34-16-, alt 620m, August 1996. New to England and first record south of the Scottish highlands. Confirmed A M Fryday

S P Chambers & J M Gray

Phaeophyscia endophoenicea: on low bough of *Acer pseudoplatanus*, by path, Links Wood, Tynninghame, VC 82, East Lothian, 36/63-80-, October 1996. New to southeast Scotland.

B J & A M Coppins

Phaeophyscia sciastra: on sides of hollow in horizontal sarsen stone (The Slaughter Stone), Stonehenge, VC 8, South Wiltshire, GR 41/12-42-, 1994. New to lowland England.

F Rose

Phaeophyscia sciastra: for details see under *P. endococcina*

S P Chambers & J M Gray

Physcia aipolia: on twig of canopy of *Fraxinus* that had fallen over into a quarry, Otley Bottom, VC 25, East Suffolk, GR 62/20-54-, December 1996. Growing amongst *Xanthorion* elements, but including *Lecidella elaeochroma*, *Lecanora*

carpinea, *L. symnicta*, *Bacidia arnoldiana* (c.f.r.) and *Xanthoria* sp. *Physcia aipolia* is new to VC25.

C J B Hitch & P M Earland-Bennett

Physcia stellaris: on well-lit branches of field oaks (*Quercus*), east of Llanfarian, VC 46, Cardiganshire, GR 22/59-77-, alt 30m, March 1997. New to Cardigan.

S P Chambers

Placynthium flabelliforme: on frequently inundated rocks in lichen-rich stream, Afon Ysgethin, Tal-y-bont, VC 48, Merioneth, alt 165 m, GR 23/60-22-, July 1996. New to Wales.

A Orange

Porina heterospora: on slightly calcareous rockface in ancient woodland, Coedmor NNR, VC 46, Cardiganshire, GR 22/19-43-, March 1996. New to Wales.

A Orange

Protoblastenia rupestris - "albino-form": on sheltered mortar, Buckland Newton Church, VC 9, Dorset, GR 31/68-05-, February 1996. Collected H J M Bowen. An additional record of this morph with white apothecia (see *Lichenologist* 28: 95).

B J Coppins

Ramalina pollinaria: abundant on north-facing basalt crags, Blaikie Heugh, VC 82, East Lothian, GR 36/57-72.3-, alt 120m, October 1996. The largest colony of this species in southeast Scotland.

B J Coppins

Rinularia limborina: on basaltic rocks on southeast facing slope of Traprain Law, East Linton, VC 82, East Lothian, GR 36/58-74-, October 1996. New to the Lothians.

B J Coppins

Rinodina colobinoides: on large *Acer campestre* in parkland, Brockenhurst, VC 11, South Hampshire, GR 41/30-01-, 1995. Second British record (see *Bulletin* 76: 56). Determined B J Coppins

N A Sanderson, B J Coppins & P W James

Rinodina orculariopsis: rarely on horizontal surface of sarsen stone, Stonehenge, VC 8, South Wiltshire, GR 41/12-42-, 1994.

P W James & F Rose

Rinodina orculariopsis: on well-lit quartzite boulder above estuary, north of Agon Cymerau, VC 46, Cardigan, GR 22/70-96-, alt 170m, 1995. First record for Cardiganshire. Confirmed A Orange

S P Chambers

Rinodina pityrea: with *Caloplaca luteoalba* on base of dead *Ulmus*, c 5km south-southeast of Selkirk, North Synton, VC 80, Roxburghshire, GR 36/49-23-, alt 180m, November 1996. Second Scottish record. It was with apothecia, but the species may be overlooked and occur more widely in a sterile condition.

A M & B J Coppins

Sarocogyne clavus: following cracks on horizontal sarsen stones, Stonehenge, VC 8, South Wiltshire, 41/12-42-, 1994. The first lowland inland record for this maritime and upland species.

P W James & F Rose

Schismatomma graphidioides: for details see under *Catillaria alba*.

A M & B J Coppins

Schismatomma umbrinum: on bole of mature *Quercus* in old oakwood, Cawdor Wood, near Nairn, VC 96, East Inverness-shire, GR 28/84-49-, alt 80m, September 1996. Although this normally saxicolous species is occasionally found on tree trunks or roots associated with acid outcrops, to our knowledge this is the first report of this species from the bole of a free-standing tree.

B J & A M Coppins

Solenopsora holophaea: on sandstone of outer Bailey wall in places exposed to southwesterly winds from the sea 10 km away, Carisbrooke Castle, VC 10, Isle of Wight, GR 40/48-87-, 1995.

F Rose

Solenopsora vulturiensis: (i) on sandstone stonework, Carisbrook Castle, VC 10, Isle of Wight, GR 41/48-87-, 1995; (ii) frequent on south wall of church, Icklesham, VC 14, East Sussex, GR 51/88-16-, 1966.

F Rose

Stereocaulon leucophaeopsis: on acidic rocks, northwest of Knockbrack, near Letterfrack, Connemara National Park, VC H16, West Galway, GR 02/75-57-, September 1987. New to Ireland.

A Orange

Stereocaulon symphycheilum on mildly basic, igneous rock face, Clogwyn y Garnedd, Snowden, VC 49, Caernarvonshire, GR 23/61-54-, alt 650m, October

1996. New to Wales. Previously known in the British Isles only from Coniston in the English Lake District. There is no obvious evidence of mineralisation at this site although there is a disused metal-mine in the vicinity. See *Belonia russula* for further details.

A M Fryday

Sticta fuliginosa: fertile on *Salix* near river in Plym Forest, three miles from centre of Plymouth, VC 3, South Devon, GR 20/52-60-, 1996. The River Plym is in a steep wooded valley at this site and any pollution from the city is likely to pass overhead. Confirmed A Orange.

B Benfield

Stigmidium arthoniae (Arnold) Hafellner (1994): on thallus of *Arthonia radiata* on *Corylus*, hazelwood to west of Sonachan Hotel. Ardnamurchan Peninsula, VC 97, West Inverness-shire, GR 17/45-66-, June 1992. New to British Isles.

B J Coppins

Stigmidium epiramalina (Vouaux) Hafellner (1994): (i) on thallus of *Ramalina cuspidata*, Skellig Michael, VC H1, South Kerry, GR 00/24-60-, August 1988, collected A M O'Dare; (ii) on thallus of *Ramalina cuspidata*, St Baldred's Cradle, Tynninghame, VC 82, East Lothian, GR 36/63-81-, October 1996, collected B J & A M Coppins; (iii) on thallus of *Ramalina siliquosa*, Wester Alligin, Torridon, VC 105, West Ross, GR 18/82-57-, June 1994, collected B J Coppins & A M O'Dare. New to British Isles. Specimens in E.

B J & A M Coppins

Stigmidium pumilum (Lettau) Matzer & Hafellner (1990): on thallus of *Physcia caesia*, Invernaver-NNR, Bettyhill, VC 108, West Sutherland, GR 29/7--6--, August 1983. New to British Isles.

B J Coppins

Stigmidium tabacinae (Arnold) Triebel (1989): on thallus of *Toninia sedifolia*, Old Shandwick, near Tain, VC 106, East Ross, GR 28/85-74-, July 1976, collected D G Long. New to British Isles. Specimen in E.

B J Coppins

Taeniolella phaeophysciae: on *Phaeophyscia orbicularis* on *Sambucus* in quarry, very prolific, not only on the thallus, but also smothering fruits, Alderton, VC 25, East Suffolk, GR 62/33-43-, December 1996.

C J B Hitch & P M Earland-Bennett

Toninia episema: on south-facing wall of church, North Perrott, VC 5, South

Somerset, GR 31/47-09-, 1996. Confirmed A Orange.

B Benfield

Trapelia corticola: on acid *Fagus* in pasture woodland, Ebernoe Common, VC 13, West Sussex, GR 41/97-26-, May 1995. First Sussex record.

N A Sanderson

Trapelia involuta: amongst soil and small stones backing sheep-eroded soil creep terrace, near Snarraness House, Snarra Ness, VC 112, Shetland, GR 411/23-56-, August 1988. Confirmed B J Coppins. New to Shetland, although *Trapelia coarctata* has been found on numerous occasions.

D H Dalby

Usnea filipendula: on *Rhododendron* in Eridge Sandrocks Reserve, VC 14, East Sussex, GR 51/56-36-, February 1997. Confirmed B J Coppins. New to VC 14, and new to southeast England.

S R Davey

Usnea hirta: on *Rhododendron* and *Quercus* in Eridge Sandrocks Reserve, VC 14, East Sussex, GR 51/56-36-, February 1997. New to VC 14 according to *Atlas of Sussex Mosses, Liverworts and Lichens 1991*.

S R Davey

Usnea wasmuthii: on *Salix* in marshy ground, Rosemoor, Walwyn's Castle, VC 45, Pembrokeshire, GR 12/87-11-, April 1995. Fertile. Possibly the first record of this species with apothecia.

A Orange

Vestergrenopsis elaeina: on mildly basic igneous rock face, Clogwyn y Garnedd, Snowdon, VC 49, Caernarvonshire, GR 23/61-54-, alt 650m, October 1996. New to Wales. Previously known in British Isles only from Isle of Skye and Glen Coe. See *Belonia russula* for further details.

A M Fryday

Veizdaea acicularis: over decaying vegetation in the vicinity of small mineralised veins on a steep, very exposed, unstable, shale sea cliff, Allt Wen SSSI, VC 46, Cardiganshire, GR 22/57-79-, August 1996. Undoubtedly an entirely natural habitat, the veins showing no signs of ever having been worked (too small) and constantly eroded by the elements. No other metallophytes present.

S P Chambers

Zamenhofia rosei: on base rich old *Quercus* in pasture woodland, Ambersham Common, VC 13, West Sussex. GR 41/90-18-, 1994. First Sussex record.

N A Sanderson

LITERATURE PERTAINING TO BRITISH LICHENS - 21

Lichenologist 28(5) was published on 1 October 1996, 28(6) on 9 December 1996, and 29(1) on 15 January 1997.

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

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

ARMSTRONG, R A & SMITH, S N 1996. Factors determining the growth curve of the foliose lichen *Parmelia conspersa*. *New Phytol.* 134: 517-522.

BENFIELD, B 1996. 88th report on Botany: Lichens. *Rep. Trans. Devon Ass. Advmt Sci.* 126: 235-237. An annual update, with 25 additions to the Devon checklist published in vol. 122 of the same journal.

BREUSS, O 1996. Revision der Flechtengattung *Placidiopsis* (Verrucariaceae). *Österr. Z. Pilzk.* 5: 65-94. A world revision of the genus. The 12 accepted species include *P. cartilaginea* and *P. pseudocinerea* from the British Isles.

BRODO, I M & AHTI, T 1996. Lichens and lichenicolous fungi of the Queen Charlotte Islands, British Columbia, Canada. 2. The Cladoniaceae. *Canadian J. Bot.* 74: 1147-1180. *Cladonia merochlorophaea* var. *novochlorophaea*, the sekikaic and homosekikaic acid-containing entity of the *C. chlorophaea* complex is treated at specific rank as *C. novochlorophaea* (Sipman) Brodó & Ahti. *Cladonia polydactyla* is said to differ from *C. umbricola* [not here regarded as a variety of the former] in having broader, more dentate and proliferating cups, in being taller, more corticate and greyer in colour. Four chemotypes of *C. umbricola* are recognized, including two containing thamnolic acid. [Clearly this complex requires critical re-assessment in the British Isles].

BUCKINGHAM, S 1996. In "Reports of outdoor meetings 1995". *Bull. Kent Fld Club* 41: 7-34. Brief report of lichens from Brenchley Wood (p 12).

CHESTER, T 1997. The saxicolous churchyard lichens of lowland England. *British Wildlife* 8: 161-172. A well-illustrated, semi-popular review of churchyard lichens and their ecology, together with an account of the work of the BLS Churchyards Project. British distribution maps are given for *Caloplaca*

runderum and *C. teicholyta*. The illustrations include colour close-ups of *Caloplaca aurantia* and *Lecanora pruinoso*, and a colour plate of 10 churchyard lichens, painted by Claire Dalby.

EKMAN, S 1996. The corticolous and lignicolous species of *Bacidia* and *Bacidina* in North America. *Opera Botanica* 127: 1–148. These two genera are here better defined than hitherto, supported by detailed introductory sections on morphology and anatomy [with 5 colour plates], chemistry and notes on related groups and genera. Of the species given detailed treatment, 14 occur in the British Isles. The type of *Bacidia hegetschweileri* is shown to be *B. subincompta*, and *B. hegetschweileri* auct. should be known as *B. vermifera* (Nyl.) Th.Fr. (1874). *B. subfuscata* is transferred to *Lecania* as *L. subfuscata* (Nyl.) Ekman. It is proposed that *Bacidina* Vezda (1991) be conserved against *Lichingoldia* D. Hawksw. & Poelt (1986) and *Woessia* D. Hawksw. & Poelt (1986), both of which are based on anamorphic [conidial] states (see Ekman's formal proposal below).

EKMAN, S 1996. (1256) Proposal to conserve the name *Bacidina* against *Lichingoldia* and *Woesia* (lichenized Ascomycotina). *Taxon* 45: 687–688. A formal proposal to follow that in the author's recent monograph (see above).

ETAYO, J & DIEDERICH, P 1996. Lichenicolous fungi from the western Pyrenees, France and Spain. II. More Deuteromycetes. *Mycotaxon* 60: 415–428. Includes description of *Macrophomina pseudeverniae* Etay & Diederich [see 'New, rare and interesting' in this issue].

FERRY, B & WATERS, S 1984. The vegetation of natural freshwater pits at Dungeness—II: lichens and bryophytes. *Trans. Kent Field Club* 9: 153–158. Discussion of the habitat and changes, with a list of 32 lichens. [Reference overlooked earlier in this series].

HEIDMARSSON, S 1996. Pruina as a taxonomic character in the lichen genus *Dermatocarpon*. *Bryologist* 99: 315–320. The so-called pruina in, for example, *D. minutum*, is shown not to be made of crystals but of non-compressed, air-filled, \pm isodiametric cells or cell remnants.

JAMES, P W, ALLEN, A & HILTON, B 1996. The lichen flora of Lundy: I The species. *Ann. Rep. Lundy Field Soc.* 46: 66–86 + 2 colour plates. A brief introduction and a map of the island is followed by an annotated list of 315 taxa, 309 of which were found during the authors' 1995 survey. The 4 colour photographs depict *Acarospora smaragdula*, *Teloschistes flavicans*, *Buellia subdisciformis* with *Rhizocarpon geographicum*, and *Anaptychia ciliaris* subsp.

mamillata. The second paper will report on the lichen communities on Lundy.

JØRGENSEN, P M 1996. The oceanic element in the Scandinavian lichen flora revisited. *Symb. Bot. Ups.* 31: 297–317. The euoceanic element in Scandinavia is discussed, with many references to occurrences in the British Isles. European or world distribution maps are presented for *Bryoria bicolor*, *Leptogium britannicum*, *Megalospora tuberculosa*, *Sticta canariensis* [s. lat.] and *Thelotrema petractoides*

JØRGENSEN, P M 1996. On the nomenclature of lichen phototypes. *Taxon* 45: 663–664. Continues the discussion begun by Laundon (1995; see *Bulletin* 77: 45–46).

LAUNDON, J R 1996. Lichen photomorphs: the good, the bad, and the ugly. *Taxon* 45: 665. A reply to Jørgensen's article in the same journal (see above), preferring the use of the term 'photomorph', and adhering to the use of the rank of forma for the appropriate morphs.

LUNKE, T, LUMBSCH, H T & FEIGE, G B 1996. Anatomical and ontogenetic studies on the lichen family Schaereriaceae (Agyriineae, Lecanorales). *Bryologist* 99: 53–63. The ascus of *Schaereria* is interpreted as being a reduced *Trapelia*-type, and the genus is retained in the Schaereriaceae, close to the Agyriaceae [incl. Trapeliaceae].

MARTIN, M 1994. *A Description of the Western Islands of Scotland*. Edinburgh: Birlinn Ltd. A new edition, edited by D J MACLEOD, of the original 1703 edition. ISBN 1 874744 19 X. Martin Martin, a native of Skye, prepared this Description in about 1695, and among its pages are early references to lichen dying: "the scurf called corkir" and "coarser scurf called crostil" (p 193) on the Isle of Skye; "corkir" and "crottil" on Gigha (p 264).

MITCHELL, M E 1996. *Irish lichenology 1858–1880: selected letters of Isaac Carroll, Theobald Jones, Charles Larbalestier and William Nylander*. Occasional Papers No. 10. Glasnevin, Dublin: National Botanic Gardens. Pp 64. A most revealing selection of annotated correspondence, preceded by a seven page introduction that includes photographs of Carroll, Jones and Nylander.

MOBERG, R & CARLIN, G 1996. The genus *Placopsis* (Trapeliaceae) in Norden. *Symb. Bot. Ups.* 31: 319–325. *P. gelida* and *P. lambii* have been shown to be much confused. They are best separated by chemistry: 5-O-methylhiasic and gyrophoric acids as major substances in *P. lambii*, only gyrophoric acid as major substance in *P. gelida*. In *P. lambii* the upper surface is more shiny, the soralia

usually black and cephalodia rarely distinctly lobate. In *P. gelida* the surface is mostly matt (or shiny only at lobe tips), the soralia often eroded and rarely black, and cephalodia usually distinctly lobate. [A re-assessment of British material is required!].

MOTYKA, J 1995-96. *Porosty (Lichenes) Tom I-III. Rodzina Lecanoraceae*. Lublin. [Tom I publ. in 1995]. This is the posthumous publication of Józef Motyka's monumental monograph, the notes for which have been prepared for publication by his daughter, Dr Motyka-Zglobicka, and J. Sieminska. [Although, it is extremely valuable to have Motyka's notes available in a published form, it is most regrettable that they were published in a way that formal nomenclatural innovations are proposed (several new genera and dozens of new species and new combinations introduced). The methodology and taxonomy does not reflect (or take account of) current trends in the work on aspicilioid and lecanoroid lichens - chemistry is restricted to spot tests, and the significance of ascus structure was not widely appreciated until after Motyka's death in 1984. There is not space here to outline all the many shortfalls and errors - certainly these volumes would not have passed a modern peer review process. It is possible that this work will be proposed as an "*Opera utique oppressa*", in which case it will be formally disregarded for nomenclatural purposes. Until the difficulties surrounding this work are resolved, I will refrain from including all the name changes (very few of which are likely to become adopted) that concern British and Irish lichens.] Of the many new species proposed, only one is from the British Isles: *Tephromela hibernica* Mot., on sycamore in Co. Galway.

NORDIN, A 1996. *Buellia* species (Physciaceae) with pluriseptate spores in Norden. *Symb. Bot. Ups.* 31: 327-354. The genus *Diplotomma* is not recognized as distinct from *Buellia*. The norstictic-acid containing *Diplotomma chlorophaeum* is treated as a synonym of *B. alboatra*, but possibly deserving infraspecific status. The type of *Lichen epipolius* Ach. is shown to be a *B. alboatra* [with muriform spores]. *D. epipolium* auct., with 3-septate spores, is treated as a norstictic-acid deficient *B. venusta* (Körb.) Lettau (1912) [*D. venustum* Körb. (1860)].

PALMER, K 1996. In "Reports of outdoor meetings 1995". *Bull. Kent Fld Club* 41: 7-34. Many lichens reported and commented on, mainly from churchyards: East Farleigh Church and Frittenden Church (pp 8-9); Great Mongeham Church and Whitfield Church (pp 9-11); Wateringbury Churchyard (p 18); Goudhurst Churchyard (pp 29-30); Elmstone Churchyard and Eastry Churchyard (pp 33-34).

PALMER, K 1996. Lichen notes 1995. *Bull. Kent Fld Club* 41: 47–49. Notes from recording in Kent, mainly in churchyards. Includes report of a newly discovered, healthy population of *Physcia clementei*, and the re-appearance in Tonbridge of *Parmelia perlata*, a species said to be now expanding in a big way in the County.

PITT, J 1984. Ancient pollards of Lullingstone Park, Kent. *Trans. Kent Field Club*. 9: 129–142. Survey of the ancient oak, beech and hornbeam pollards, with detailed map and numbered list of trees; the lichen flora of some trees is noted. [Reference overlooked earlier in this series.]

SANDELL, K A & ROSE, F 1996. The lichen flora. In BREWIS, A, BOWMAN, P & ROSE, F *The Flora of Hampshire*. Colchester: Harley Books: 306–324. Short notes on habitat and distribution within the county are given for 590 species, 564 of which were recorded during 1967–1995. Reference to lichens is found elsewhere in the Flora, especially in the comprehensive chapter on “The habitats and vegetation of present-day Hampshire” by Francis Rose.

SEAWARD, M R D 1996. Mosses, liverworts and lichens. *Trans. Lincs. Nat. Un.* 24: 27–30. New records from Lincolnshire, including four new records for the county. The current state of post-1960 lichen recording is graphically presented.

TIBELL, L 1996. *Phaeocalicium* (Mycocaliciaceae, Ascomycetes) in northern Europe. *Ann. Bot. Fennici* 33: 205–221. A revision, treating 8 species, from the Nordic countries and Greenland. *Stenocybe tremulicola* is transferred to *Phaeocalicium* as *P. tremulicola* (Norrl. ex Nyl.) Tibell. [From the description of the latter, it would seem that the British material of “*S. tremulicola*” is incorrectly determined. It agrees more closely with *P. populneum*, but has a purplish brown, K+ green pigment in the apothecial stalk.]

WETMORE, C 1996. The *Caloplaca siderites* group in North and Central America. *Bryologist* 99: 292–314. A revision of 15 saxicolous species of *Caloplaca* with abundant grey or white thallus and apothecia with anthraquinones. The introductory sections and species accounts contain much information pertinent to students of *Caloplaca* in the British Isles (and Europe). Especially important are notes on the pigments ‘thalloidima green’ and ‘lecidea green’, the accounts of *C. atroflava*, *C. chlorina* (cf. *C. isidiigera*), *C. crenularia*, *C. oxfordensis* and notes on species incorrectly reported from N America (eg *C. aractina*, *C. teicholyta* and *C. isidiigera*. [*C. oxfordensis* Fink ex J. Hedrick (1934) is adopted as an earlier name for *C. subpallida* H. Magn. (1945) - and could prove to be the correct name for what is known in Britain as *C. arenaria*, which is said to have darker apothecia. However, Laundon claims that a continuum in the colour of apothecia occurs (cf. *Flora*: 146]).

"LICHENS OF MAN-MADE SURFACES" LEAFLET

One of the most frequent requests from the general public is for more information either on encouraging lichens to grow on new surfaces, or on how to remove them from stonework. The Society has produced the enclosed leaflet, the latest in an advisory series, to respond to this need.

There is much anecdotal evidence relating to encouragement of growth of lichens by the use of slurry etc., but very little documented research has been undertaken. Such information as is available is incorporated in this leaflet and it is hoped that this will prove helpful to enquirers. To give overall disapproval of the removal of lichens would not inhibit the use of unnecessarily destructive methods. It is therefore better to adopt a considered attitude to the situation and to suggest non-destructive methods of reading inscriptions. When no alternative method is possible, advice on the removal of lichens is given, together with appropriate qualification.

The Society is grateful to Alan Orange for providing the illustrations which so much improve the appearance of this leaflet and make it much more acceptable to a non-lichenologist. If you would like additional copies please send your request, together with a SAE, to the Assistant Treasurer (address on the cover of this *Bulletin*).

Frank Dobson

CORRESPONDENCE

Dear Editor

This is in the nature of a comment on the cartoon characters by Miądikowska & Skakuj on p34 of the Winter 1996 *Bulletin* 79. The camels portrayed are one-humped, dromedary, whilst the camels of Mongolia are two-humped bactrian. As for the latin, I have often regretted my lack of a classical education, but one can't have everything!

Ken Hill

[I have consulted latin scholars who advise me that a loose translation (of what is rather loose latin) might be: "Worldwide lichen illustrations: pictures of new species"
- Ed]

CHECKLIST OF BRITISH LICHENS WITH BLS SPECIES NUMBERS ON DISK

With the assistance of Mark Seaward, to whom I am greatly indebted, I have produced a computer disk of the British lichen species with their recording number as used on the various BLS recording cards. The disk is largely the Checklist (February 1994) with additions published in the Society's publications up until about last autumn.

The disk is ASCII with line-feed/carriage-return symbols at paragraph ends only, and tab symbols between the three fields which are the BLS number, the genus, and the specific name. The list is arranged by BLS number. As such it should be usable by all computer systems, and eminently suitable for most databases, spreadsheets and word-processing programs. It is free from viruses and, because it is in this format, should be reliably so. Unfortunately, it does not include the author nor the date of publication.

The British Checklist is being constantly added to and changed; I shall try to keep the disk as up to date as I can using BLS literature so it is likely to change over the next few months. For this reason Jeremy Gray has suggested that you order the disk direct from me. Also I understand that an updated version of the Checklist (which no doubt will include a host of nomenclature changes) is in preparation and this will include the BLS numbers; moreover it will also be available on disk. However, in the meantime:

If you would like a copy please send £1 in postage stamps to me at 40 Laurel Grove, Kingswood, Maidstone, Kent, ME17 3PR, UK.

David Newman

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Please would intending contributors to the Winter 1997 issue of the *Bulletin*
submit their copy to the Editor by 19 September. It would be helpful, but
by no means essential, for authors of longer articles prepared on a word
processor to supply a copy on a 3.5" floppy disc, in addition to the hard
copy. This can be in MS.DOS, Word, Word Perfect or any format from an
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