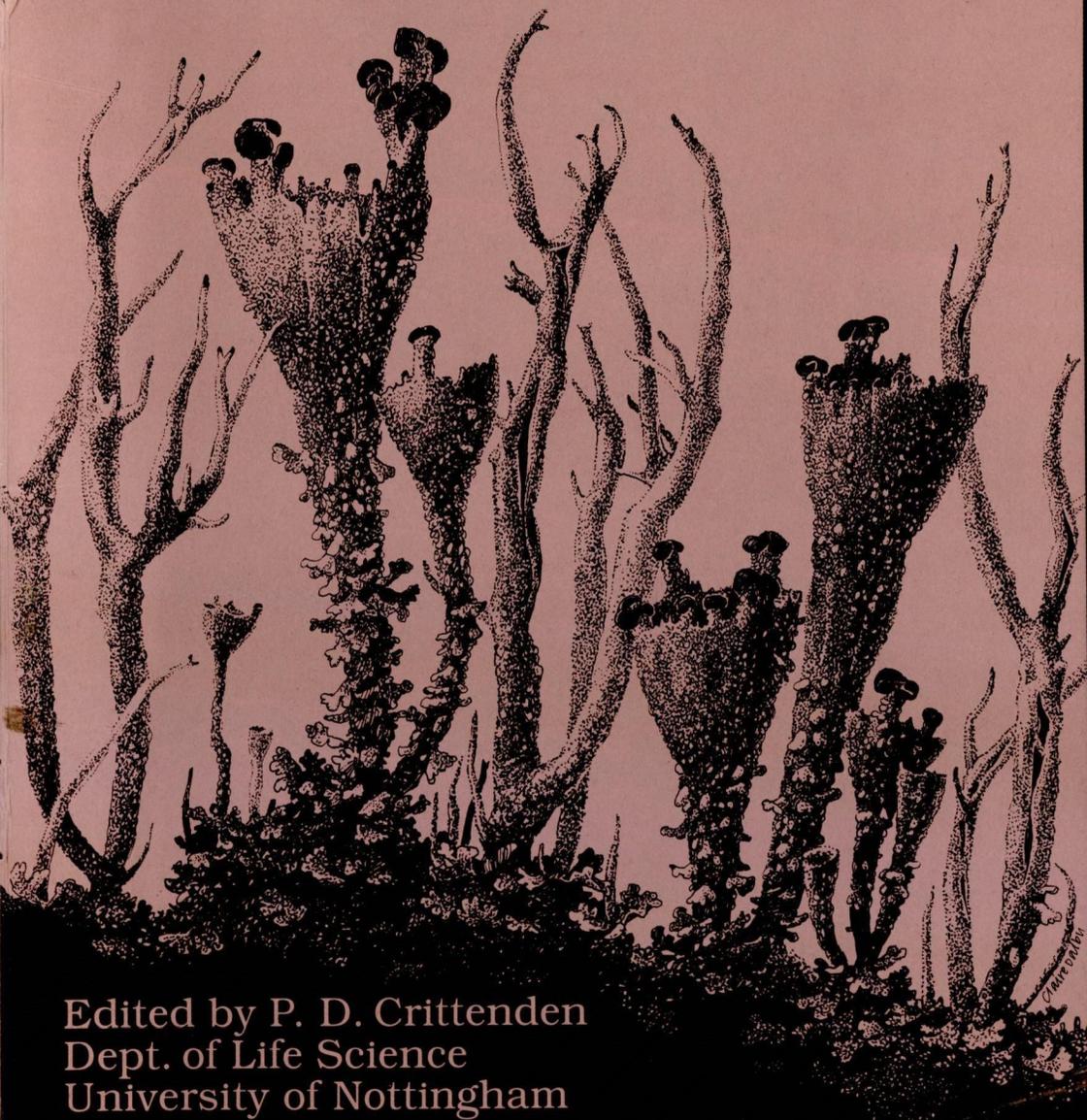


BRITISH LICHEN SOCIETY BULLETIN

No.72 Summer 1993



Edited by P. D. Crittenden
Dept. of Life Science
University of Nottingham

FORTHCOMING BLS WORKSHOP

PEMBROKESHIRE - *Collema / Leptogium* workshop

Leader: Peter James

22-25 October 1993

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SUBMISSION DEADLINE

Please would intending contributors to the Winter 1993 issue of the *Bulletin* submit their copy to the Editor by 17 September.

Cover artwork by Claire Dalby

IN SEARCH OF LICHENS IN THE FAR SOUTH

During the course of a diverse botanical career with the British Antarctic Survey I have been fortunate in being able to carry out ecological surveys throughout the region known as the maritime Antarctic (Antarctic Peninsula, South Shetland and South Orkney Islands), as well as a region of continental Antarctica, the sub-Antarctic island of South Georgia and the Falkland Islands. In the role of Antarctic plant ecologist it is essential to have a basic knowledge of all cryptogamic groups, at least those you can see. You need to know the identities of a couple of hundred lichens, a hundred bryophytes and a handful of algae. Phanerogams aren't so bad - there are only two species. With that basic knowledge you are then conversant with the entire macro-flora of an area one and a half times the size of the USA! Antarctic lichen taxonomy is still poorly known, although in recent years there has been a welcome resurgence of interest by specialists in several countries. In support of my ecological studies it was necessary to make representative collections of the cryptogams for identification, to understand the composition of the communities and to gradually acquire a detailed knowledge of the distribution of individual species. A particular aspect of my research that has given me great delight has been visiting and working on small islands. In this article I shall relate a few personal lichenological experiences on some of these. Every area visited has been an experience in itself and remains vividly imprinted in my memory.

Falkland Islands

These islands, much resembling the north-west of Scotland, have a Patagonian flora and a fascinating vegetation, of which the cryptogams are little known. I had long had a desire to look at the "high altitude" flora of Mt. Osborne, the highest mountain at 758 m. Being 65 km from Port Stanley, the islands' capital, the only access is overland by landrover, horse, walking or by helicopter. We had two Bell Jet Rangers on board our ship, RRS *Bransfield*, although one was out of action, and the pilots were eager to get some flying in before the helicopters were stored away in the hold for the homeward journey. Convincing the pilots of the scientific justification of checking the impact of the recent conflict on the montane ecosystem of Mt. Osborne was not difficult, even though the action was nowhere near here. So, after a half hour flight I was standing in a dense sward of luxuriant *Usnea aurantiaco-atra* on the summit in a howling gale and thick drizzly cloud (Figs 1 & 2). Fortunately, it soon brightened and I spent a most rewarding two hours investigating the corrie ledges above Black Tarn just beyond the plateau. Of several new records for the islands during the brief foray were two colourful Pseudocyphellarias, and an aphid new to science.



Fig 1. Windswept fellfield dominated by *Usnea aurantiaco-atra* on the summit plateau of Mt. Osborne, East Falkland Island

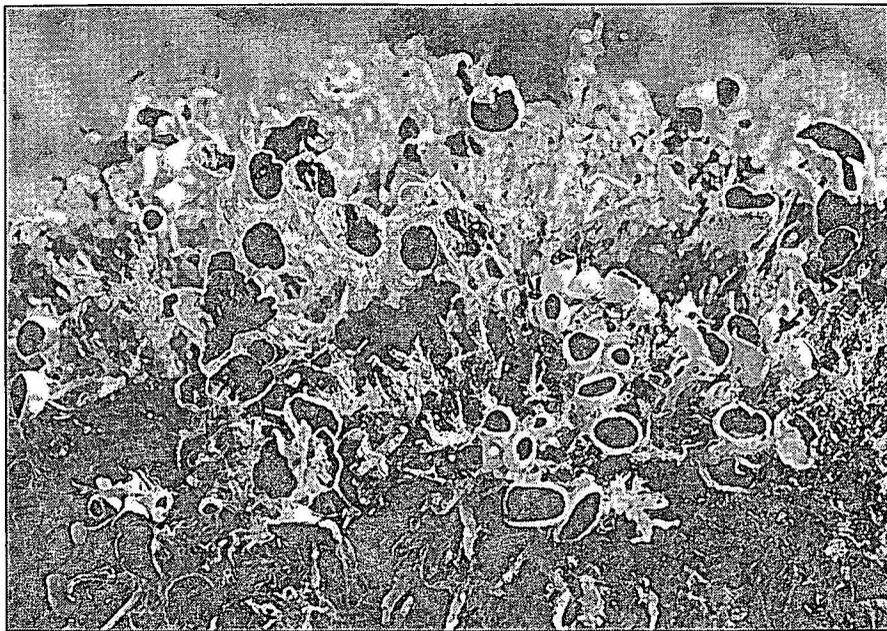


Fig 2. *Usnea aurantiaco-atra* is one of the commonest macrolichens in the maritime Antarctic

Beauchêne Island

This 4 km² island lying 80 km south of East Falkland Island has the world's largest mixed albatross and penguin colony (160,000 and 300,000 pairs, respectively). What isn't covered by birds is covered by an exceptionally dense monoculture of 3 m high tussac grassland (Fig 3). Penetrating the grass jungle is possible only by crawling through the dark tunnels beneath the interwoven skirt of dead foliage. The island's flora is remarkable for its paucity of species, yet the rich arthropod fauna yielded several species new to science. Only a dozen lichen taxa were recorded, the most interesting being corticolous species on stranded *Nothofagus* trunks washed here from Patagonia. Once, as I emerged from such a tunnel in search of lichens, I had just stood up when I was knocked to the ground stunned by a violent blow to the back of my head. The culprit was a male striated caracara, a large endangered falcon; the island happens to be its main stronghold, with over 250 birds. It landed at my feet and proceeded to shred the bag of specimens I had dropped. I had appeared suddenly just below its nest, and it was not pleased at being disturbed.

South Georgia

This sub-Antarctic island offers magnificent scenery and a tundra-like vegetation rich in lichens. It also supports two discrete populations of introduced reindeer (Fig 4). On many occasions, while in a recumbent position analysing grazed communities, a herd of these splendid animals has calmly strolled past only a few metres away quite oblivious to my presence. Sadly, they have long since eradicated virtually all the macrolichens, but ecological comparisons may be made with non-grazed areas. However, above about 700 m takes you into the "Antarctic" zone where there are several lichens typical of much farther south, notably *Pseudophebe* and *Umbilicaria*. Shore landings by inflatable boat from the ship for botanical surveys of the island can be both invigorating and hair-raising in rough weather - careening over breaking waves and judging the right moment to leap onto slippery rocks just as the surge is receding. On some of the beaches the agile botanist has to run the gauntlet of huge numbers of aggressive and highly mobile fur seals or, ascending steep rocky slopes to confirm the identity of a lichen on a cliff high above the shore and spotted through binoculars from half a kilometre away, endure continual knee-stabbing by myriads of raucous penguins through whose colony is the only access.

Antarctica

Politically (and biologically) this includes everywhere south of 60°S. It is the real haunt of the lichenologist, for here lichens dominate most vegetated areas, except the wettest which is the haunt of the algologist and bryologist.

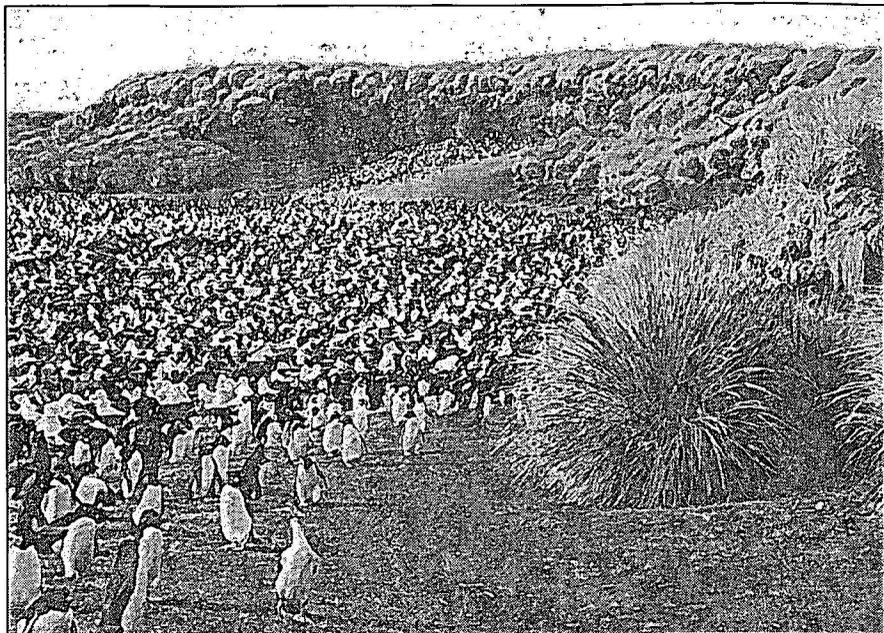


Fig 3. Edge of tussock grassland (*Parodiochloa flabellata*) and mixed rockhopper and black-browed albatross colony on Beauchêne Island

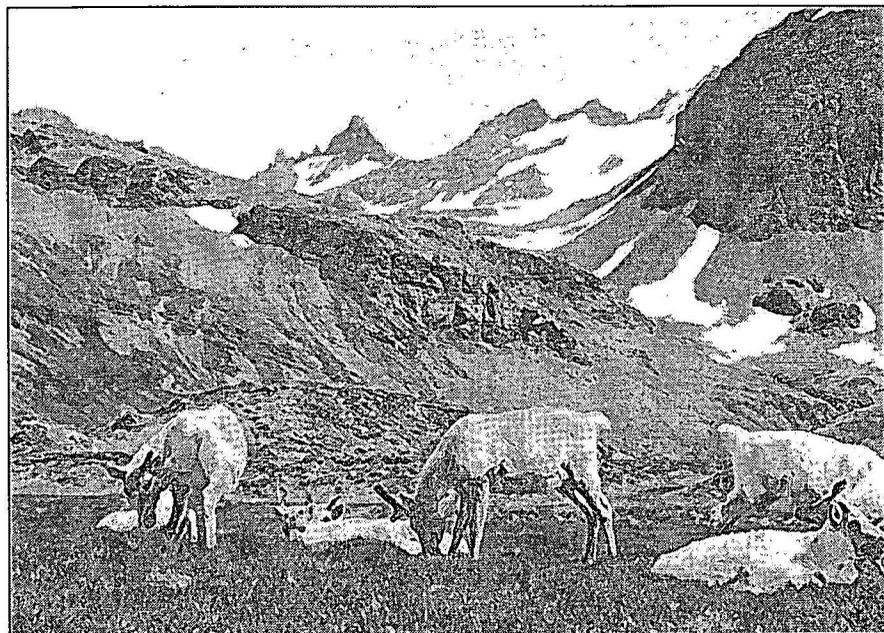


Fig 4. Reindeer in spring grazing in *Festuca contracta* grassland, South Georgia. All macrolichens have been eradicated.

As an itinerant austropolar ecologist I have to be a bit of all these! I have many happy (and some less happy) recollections of visiting new areas during my travels and assessing the composition of the local vegetation. Reaching these sites has involved a variety of modes of transport - boat, over-snow vehicle, all-terrain vehicle, skis, helicopter.....

South Orkney Islands. My introduction to exploratory lichen collecting in the Antarctic was to be landed waist-deep in a rough sea and blizzard on Powell Island for a two-week biological and geological survey of the island. My companions were a geologist and two assistants. Much of the unmapped island was covered by glaciers across which we had to trek to reach most rock exposures; elsewhere it was a case of traversing razor-edged ice arrêtes. One day I made the careless mistake of working on my own at one lichen-encrusted outcrop while the others roped-up and proceeded across a glacier to some feature of geological interest. By the time I had met up with them I had broken through several snow-covered crevasses up to my waist. A week later a substantial thaw revealed that these crevasses were up to 3 m wide and 20 m deep usually with a torrent of melt water at the bottom. During the winter at our research station on Signy Island, when the wind was in the right quarter, I used an ex-airforce supply-drop parachute (purchased for £15) to tow me on skis over the sea ice, glaciers and ice caps to my study sites. This was long before uphill paraskiing became a popular and expensive sport.

South Shetland Islands. Deception Island is botanically one of the most interesting of these islands. It is a fascinating volcano into which a ship can sail through a narrow gap in the crater rim. Although largely devoid of vegetation, it has quite a diverse flora. The most interesting species, although mostly bryophytes forming unique communities, are associated with fumaroles where the soil temperature can exceed 70°C (Fig 5). Throughout the maritime Antarctic nutrient-enriched rocks and cliffs near penguin and other bird colonies are vividly coloured by a rich lichen flora of *Buellia*, *Caloplaca*, *Haematomma*, *Usnea*, *Xanthoria*, etc. visible from miles away. On sheltered coastal cliffs *Umbilicaria antarctica* thalli reach 30 cm diameter and *Bryoria chalybeiformis* 45 cm in length.

North-eastern Antarctic Peninsula. On northern James Ross Island the 3000 km² ice-free gently undulating desert-like terrain is ideal for the use of all-terrain vehicles to reach the very sparsely distributed stands of lichens and mosses. Collecting forays sometimes covered up to 30 km in a day and numerous species new to the Antarctic, and some new to science, were found. One of the most unusual habitats was that of semi-mummified seals and their much older skeletons which dotted the landscape many

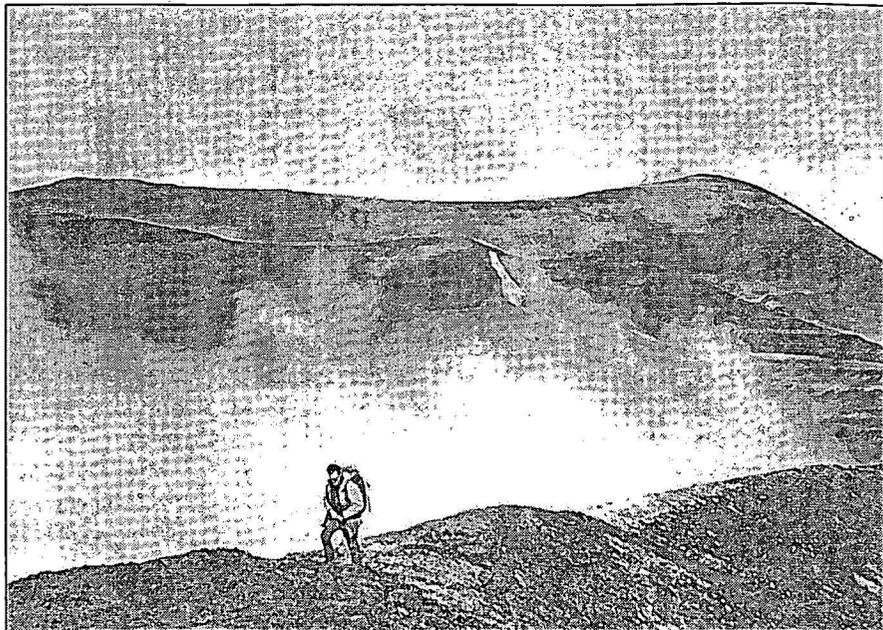


Fig 5. Searching for life on the barren geothermal wastes of Deception Island, South Shetland Islands.

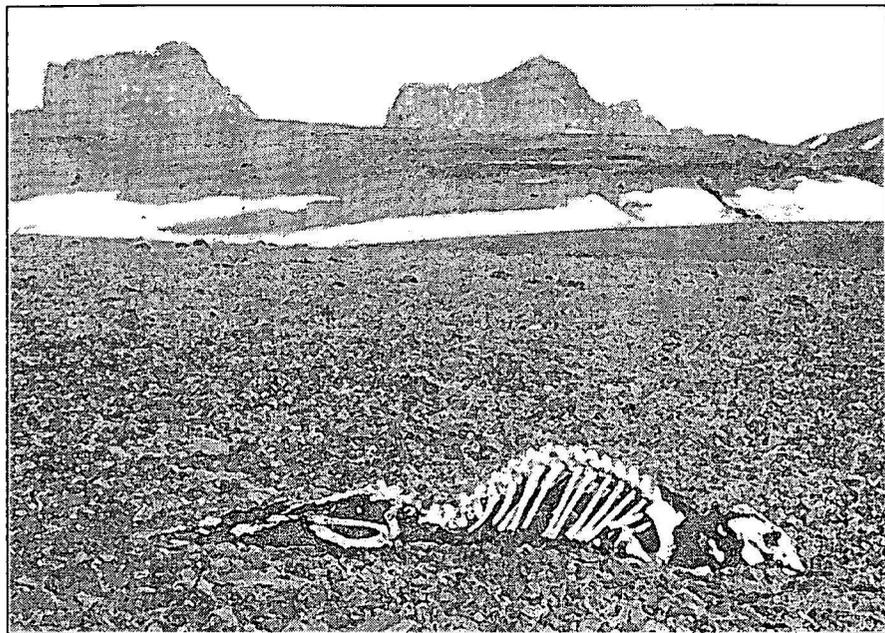


Fig 6. Seal skeleton serving as a lichen oasis on the inland wastes of James Ross Island, north-east Antarctic Peninsula.

kilometres inland (Fig 6). Why they had ventured inland is unknown (in southern Victoria Land mummified carcasses more than a thousand years old occur over a hundred kilometres inland). These nutrient-rich "oases" are colonised by numerous lichens (notably *Caloplaca*, *Physcia*, *Physconia*, *Xanthoria*) and occasional mosses. Here, also, fossil tree trunks and other wood had a modern "epiphytic" lichen flora. During that expedition I succeeded in landing on nearby Cockburn Island, site of the first botanical collection in the Antarctic by J D Hooker in 1843. No botanist had ever climbed to the plateau of this island mesa, so it was quite a thrill to reach it and discover many species not found by Hooker.

Western Antarctic Peninsula. The western side of the Antarctic Peninsula is studded with islands up to 4500 km² in area. Scenically and biologically, this is the most spectacular part of Antarctica. Throughout the peninsular region there are 8 permanently occupied research stations (population c 250). I have had many exhilarating excursions ashore to investigate the vegetation. Although there is always satisfaction to be gained from compiling a list of species from a previously unknown area, even if few of the crustose taxa can be named, the real excitement comes when you know intuitively that you have just found something new to the region or to the Antarctic, or even occasionally to the Southern Hemisphere or to science. But perhaps the greatest experiences are in getting there (Fig 7). I remember on one occasion cruising serenely in brilliant sunshine through an ice-studded mirror-calm black sea in which perfect reflections revealed the individual thalli of lichens at the top of a 600 m high rock face only a few metres away in the water. It's not often you can identify lichens by training your binoculars onto the surface of the sea! On another occasion we were quietly waltzing around the ice floes in an inflatable to reach some interesting looking rock exposure when a group of humpback whales nonchalantly broke the surface a few metres away spraying us with a warm mist, then plunging deep with a wave of their huge flukes. Ecology watching in these places is truly a privilege, but it can have its dangers. Once, I was sampling a colourful array of ornithocoprophilic lichens on top of a 3 m high perched erratic on a steep moraine slope. It was used as a skua perch (these birds can be a danger themselves, as anyone working in the North Isles will know!) and such boulders have a distinctive nitrophilous flora. I had just begun attacking the rock with my hammer when the massive object slowly began to topple forward. I just managed to leap off as it rumbled down the scree and crashed into the sea below.

Continental Antarctica. One summer I had the privilege of being invited by the Australian Antarctic Division to work at Casey Station in Wilkes Land, diametrically opposite the Antarctic Peninsula. While my

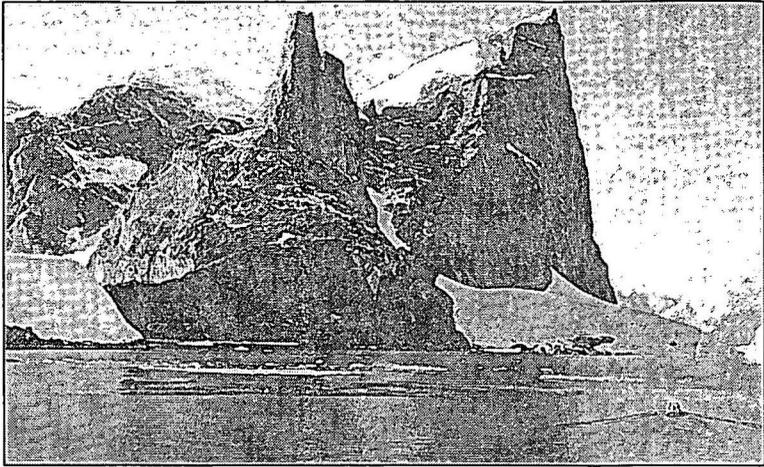


Fig 7. Using an inflatable boat to reach the inaccessible cliffs of Cape Pérez, west Antarctic Peninsula.

ecophysiological work was in the immediate vicinity of the station, a group of us, including Prof Ludger Kappen, the leading Antarctic lichen physiologist, set off for a few days to a remote area about 50 km away. For transport we had a large tracked Nodwell and trailer, the destination being Peterson Island. As it turned out it was lichenologically rather disappointing but the community dynamics were fascinating. On the other hand the scenery and wildlife for that part of Antarctica were exceptional. I recollect our little group one evening discussing our botanical findings while seated on benches and dining off a table - all carved out of snow at our campsite in the middle of a vast icefield.

The above lichenological travelogue is only a small part of my research on terrestrial ecosystem dynamics in the Antarctic. However, collection and accurate identification is a crucial part of any ecological study as it requires a knowledge of the biota comprising the communities and involved in the processes being studied. Despite some fairly intensive botanical studies in a few areas, there is little liaison between the taxonomic specialists working on the national collections. Consequently, in the absence of descriptive floras, the increasing number of species lists being published for disparate areas contain many taxonomic anomalies and uncertainties. There is an urgent need for critical revisions to be made of many lichen (and bryophyte) genera. So, if anyone out there would like to extend their geographical area of interest or is looking for a taxonomic challenge, I shall be pleased to hear from you!

Ron Lewis Smith
British Antarctic Survey, Cambridge.

SECRETARY'S REPORT FOR 1992

Without doubt, the most exciting lichenological event of 1992, for me personally and I know for many others, was the long-awaited publication of *The Lichen flora of Great Britain and Ireland* on 24 November. This book would not have been possible without the help of a great many people and I would like to thank you all. BLS Council decided to give a subsidy of £4,500 which has enabled the book to be sold at a most reasonable price to members of the Society. This was largely due to the generosity of the A G Side bequest. Trudi was a great supporter of the amateur lichenologist and bryologist and I am sure she would be very happy to know that some of her money would greatly help stimulate interest of British and overseas lichenology.

As we have just heard from Frank Dobson, Dougal Swinscow died on 24 September. Dougal will be known to many of you personally and his death will be a great loss to the Society. Obituaries appeared in all the major newspapers and also the *British Medical Journal*, of which he was Deputy Editor for many years, and also the *Lancet*. Stephen Lock of the *BMJ* wrote that he had received a letter from Dougal when his illness had been diagnosed. He wrote "All flags will be flying when I go down because I'm conscious of having lived a completely fulfilled life and produced at least one work, on the East African lichens, by which I shall be remembered far into the next century". As we have also heard from Frank, Dougal has generously left £500 to the Society and also his copies of *The Lichenologist* which are also to be made available to members of the Linnean Society and will be housed in the Lichen Section at the NHM. Thank you Dougal.

On Friday 3 January 23 members attended a buffet and lichen Quiz held at the Royal Entomological Society of London, and on Saturday 3 January the Annual General Meeting was held in The Natural History Museum. In the afternoon there was a stimulating lecture meeting under the general theme "Lichens under Stress". Council met on three occasions in January, March and September. Two major Society field meetings were held in Cornwall and Ireland, led by Trevor Duke, Peter James and Brian Coppins. Two successful workshops were held, one led by Trevor Duke and Peter James in Cornwall where $\frac{3}{4}$ of the British *Usnea* species were found and one on Churchyard Conservation at Stoneleigh organised by Kery Dalby and Tom Chester with contributions from Peter James and Francis Rose. Many thanks to all concerned for making them such a success.

Four issues of *The Lichenologist* amounting to 410 pages were produced under the Senior Editorship of Dr Brown, and two bumper issues of the

Bulletin totalling 136 pages by Dr Crittenden; an index to the *Bulletin* was also compiled by Don Smith.

Now that *The Flora* is almost behind us, the Society must look for new challenges. One concerns the mapping scheme and its initiative to produce fascicles of maps. However, the success of any such venture will depend on active co-operation and records being received from members. Another important initiative is that of the Churchyard Project organised by Tom Chester which is gathering great momentum. BLS Council is also planning a new checklist of British lichens based on the *Lichen Flora* which will be published as a supplement to the *Bulletin*.

The Society has currently 535 members, 9 senior associate members and 4 family members, with 9 new members having joined during 1992.

William Purvis

JANUARY MEETINGS 1993

Evening buffet and book sale

On the evening of Friday 8 January twenty seven people attended the evening buffet and book sale held in the premises of the Royal Entomological Society of London. As last year a buffet was provided by Café Suzé with a menu of beef Stroganoff, pasta salad and rice, followed by chocolate roulade and cream. Several brief slide shows followed: from Alan Pentecost illustrating his long-term research on lichen growth in the Alps; Peter Crittenden showing lichen-rich vegetation in Caithness, northern Norway and Quebec; Edith Farkas on lichens and lichenologists in Hungary; to Mary Hickmott on churchyard lichens (a presentation that she had intended to give at the Stoneleigh meeting if time had allowed). The book sale then followed. Traditionally this has been a Seaward-Brightman double-act but unfortunately Frank was unable to attend this year's function because of his temporary confinement to a wheelchair that prevented him from descending the stairs to the conference hall. Thus on this occasion Mark worked single-handedly and with great panache to draw vast sums of money from his audience aided by Howard Fox who was eager to bid for almost everything. Lichenological works for sale this year included many items from Pauline Topham's collection that were much sought after. The evening's programme was rounded off nicely with the washing-up: as usual this, by necessity, was undertaken by the men because the washing facilities are in the men's washroom!

1993 Annual General Meeting

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

Exhibitions

The following exhibits were on display during the course of the day

Posters

Churchyard projects (Tom Chester). This mainly concerned Gloucester Cathedral which was depicted in a colourful display of photographs. There was an abundance of literature available about other churchyard projects.

Morphological and molecular studies of variation in *Trebouxia* isolated from lichens growing on metalliferous rocks (G E Douglas, D M John & O W Purvis).

Two uses for *Bryoria* in Papua New Guinea (Peter Lambley).

[Lichens of] Mount Albert Edward - Papua New Guinea (Peter Lambley).

Distribution of epiphytic lichens in tropical forests in northern Thailand (Pat Wolseley & Begoña Aguirre-Hudson).

Shetland lichens (Kery Dalby).

Other items on display

"Waternival" by M C Escher - why the lichens (Jeremy Gray)? A photograph of Escher's picture was on display; see page 42 for further explanation and Frank Dobson's answer to the question.

Flora of Australia Vol 54. Lichens - Introduction, Lecanorales I.

Rhodesian wild flowers (Anon). Artwork incorporating *Ramalina*.

Tourist and botanical information relating to the forthcoming field meeting in Slovakia.

Parmelia protomatrae Gyelnik - new to the British Isles (Peter Earland-Bennett).

Lichen based dyes (Anon).

European Air Pollution Project (Frank Dobson).

NATO Advanced Research Workshop on Ascomycete Systematics. Second and final circulars were available.

Books on lichenology and related topics were displayed by the Richmond Publishing Co.

Lectures

The afternoon lecture meeting was devoted to the British lichen flora largely in the light of the experience of writing *The Flora*. Peter James began by giving an overview of the "Trials and tribulations of flora writing". He explained that because of its great diversity *The Flora* was much more difficult to write than a monograph (for one thing it contains c 1700 species!) and by necessity it had to be a corporate effort overseen by an editorial committee; it was also given a lot of support by European colleagues. A major objective was that it should be user-friendly. To this end there was an attempt to place emphasis on *differences* between species rather than on *similarities* (which had been the tradition established by Leighton, Crombie and Smith). Writing keys for macrolichens was more difficult than for micro-species: *Cladonia* was a notable example, this was one of the first accounts to be written and it incorporated some of the early errors made in writing *The Flora*. Characteristics of microlichens tend to be more well-defined but whereas earlier accounts were "spore-oriented" more attention is now focused on types of paraphyses, asci, etc. Overseas members had been very generous in providing information including much new data on such aspects as chemistry and UV response. Peter emphasised the importance of the generic keys and, wherever possible, of having the keys tested (at the *Usnea* workshop for example). It was important to say what you meant (eg was the colour just *red* or *carmine red*?) and editors repeatedly asked the question: "If I were a novice could I understand this key?" Inevitably there were problem areas (eg *Verrucaria* spp still need to be sorted out) and the *The Flora* remains incomplete in places where there is insufficient knowledge (eg *Aspicilia*, and *Leptogium*, the latter having already been changed since publication). Peter predicted that *Lecanora* will probably be revised drastically in the future and reminded us that *Lecideia* was now a comparatively small genus. The new flora contains extensive bibliographies intended to guide the reader to more detailed literature. Now there is a need for feedback from users to the Continuation Committee (eg do the keys work, are the spore dimensions correct, etc.?).

Many species have wide distributions outside the UK and thus there are opportunities for feedback from European users too.

Next, William Purvis gave a talk entitled "Key construction: theory and practice". He reminded us that there are essentially two types of key: indented and dichotomous. Indented keys tend to be space consuming and this was the main reason for choosing dichotomous keys in *The Flora*. In addition, indented keys tend to emphasise similarities and, when large, are less user-friendly. Dichotomous keys are more practical and need not show relationships. The generic key was the most difficult part of *The Flora* to write partly because of the expansion in the number of genera since the demise of *Lecidea*. The main generic key splits into 7 sub-generic keys with no attempt to key out the commonest species first. Objectives in mind when writing the keys included: to be user-friendly; to use clear terminology and avoid jargon; to define difficult terms in a glossary; to sub-divide large keys where possible; to provide synopses of generic keys; to avoid the use of the term "not as above" as an alternative couplet; to make both couplets complementary; to avoid TLC information since this is not useful to most amateurs; to avoid locality data and statements concerning frequency such as "rare" or "frequent". Among the major problems to accommodate was the extreme variability of many species (especially macrolichens) and the need for multi-access points; where a split rests on difficult characteristics there was also a need for additional features to be considered (eg in the sterile crusts, and in many macrolichens where similar spore characteristics result in genera being classified on the basis of subtle details such as those of the ascus apex; paraphyses, exciple and conidia). William stressed the imperfect nature of many of the keys and the importance of feedback from users for future improvements. He thought that the use of computer techniques was also likely to prove important in the future.

Jack Laundon talked about "Lichen nomenclature". He explained that the basic unit of classification was the species, which consists of a group of mutually fertile individuals with common characteristics. Taxonomy was essentially the science of arranging living things in groups, and nomenclature governed the names by which these groups were called. An outline of the history of lichen nomenclature was given, from the phrase-names in the various editions of John Ray's *Synopsis*, dating from 1690, to the listing of new names in the current *Index of Fungi*. The rules in the *International Code of Botanical Nomenclature* were discussed, which were based essentially on two principles: the earliest name in a given rank is the correct one, and type specimens must be checked to ensure that a name was being correctly applied. The lack of provision for the conservation of most species names, in contrast to those of genera, was regretted. Changes made to the

Code over the years have had the effect of making it more authoritarian, with little room for individual choice. The process by which the nomenclature of lichen names was studied was outlined, access to an extensive old library being essential. Although most lichen names are now correct, further measures would be welcome to safeguard them. The forthcoming vote on the adoption of the conservation of all names in current use (NCU) will be an important landmark in nomenclature. In conclusion, Jack pointed out that most name changes take place because of taxonomic revisions, and lichen nomenclature is less studied than it should be.

The final lecture after tea was by Per Magnus Jørgensen on "The British blue-green problem". First he outlined the early problems in the taxonomy of this group. Cyanobacterial lichens are often small, apparently poorly developed and their identification requires the use of the light microscope. When Per Magnus began work on them there was little literature and the existing herbaria were inadequate. Nylander described too many species; these were often based on small specimens admixed with other species. Per Magnus circulated a list of cyanolichen genera found in the UK together with other genera which he thought we might also expect to find. Cyanobacteria are probably easier to identify than green algae and have been well-illustrated in *The Flora* (but note that *Nostoc* may be present in small packets instead of long chains). Ascocarps and pycnoascocarps in cyanolichens have been described in *The Lichenologist* 24 page 221 (1992). A pycnoascocarp is a pycnidium that begins to produce asci but with fewer paraphyses. Sometimes both types of fruiting structure are produced on the same thallus, which presents a problem. Cyanolichens do not have the advantages of characteristic chemistries and their spore details vary little. However, colour can be important: for example members of the Pyrenopsidaceae are reddish brown when wetted. *Leptogium* and *Collema* may be difficult to separate but *Leptogium* can usually be distinguished by its structured cortex and sometimes also on the basis of colour. *L. plicatile* (-upper cortex, \pm lower cortex) is difficult to separate from *Collema*. Small *Leptogiums* also cause problems. For example, *L. intermedium* (= *L. minutissimum*), which has only recently been recognised as occurring in the UK, is distinguished by the presence of some wrinkles. These are caused by well-defined anatomical features that distinguish this species from others in the genus which are paraplectenchymatous throughout (eg *L. tenuissimum*). *Leptogium byssinum* has been erroneously included in *The Flora*: the UK species is *L. biatorinum*. Per Magnus said that there were several genera not previously recorded in Britain that may well occur here. As examples he gave *Zahlbrucknerella*, a *Spilonema*-like genus with 24 spores per ascus; it occurs in Norway, where it ranges from arctic-alpine to coastal regions, and also in the Alps, therefore why not in Scotland?

Phylliscum is also common in Norway (arctic-alpine to coastal) but uncommon in the Alps; this is an *Endocarpon*-like genus occurring on acid rocks but strangely absent from Scotland. *Thelygnia* is similar to *Porocyphus* and has a black thallus with a blue-green epithecium; it occurs in Scandinavia and Spain and again should be possible to find in Britain. The aquatic genus *Pterygiopsis* is widely distributed elsewhere in Europe and has recently been discovered in Britain. There are several unresolved problems in *Pyrenopsis* and related genera.

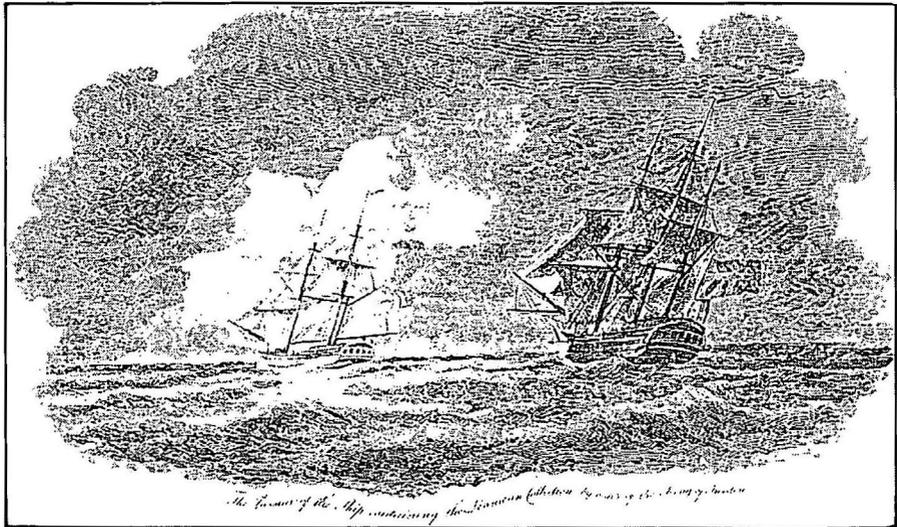
Peter Crittenden

LICHENOLOGIA

The Annual General Meeting of the British Lichen Society in January 1993 was well attended and enjoyed by everybody present. There was a general feeling of satisfaction that the new *Lichen Flora of Great Britain and Ireland* had recently been published. It is an excellent work, full of information, yet easy to read and use; a tribute to the editors and the many contributors to the text. On the following morning an excursion to Richmond Park had been arranged by the President, and was also well attended, but unfortunately the weather could not have been worse. Rain was continuous all day with biting cold wind. Observation of lichens except large ones was difficult but the members present persevered. Before breaking off for lunch they visited a churchyard. This activity has become an important one for the Society, as was obvious from the AGM. Amongst the exhibits on this theme there was a large print of a well-known drawing by Escher showing four aqueducts along the sides of a rectangle supported by four towers with an ecclesiastical appearance, with water in each flowing vigorously and falling over a weir at the end into the adjacent one, giving the impossible appearance of flowing round the rectangle for ever. In the foreground was a walled garden containing giant *Cladonia* plants; the podetia looked as if they were a metre or more high. The genus *Cladonia* obviously attracts people not otherwise particularly interested in lichens. Some lichenologists who have not written much on other genera have published serious papers on it, for instance J H Tallis who provided a key in the first volume of *The Lichenologist* and N G Hodgetts whose illustrated field guide was noted in the last issue of the *Bulletin*. Tallis was concerned with linking W Watson's *Census Catalogue* with A L Smith's *Monograph* (then already thirty years old) which we were using for descriptions in those days. Later he attempted the same thing with a key to *Usnea*. Hodgetts wanted to help non-lichenologists with naming species of ecological importance.

The internationally agreed rules of botanical nomenclature lay down instructions for everything, including even the recommended methods of abbreviating authors' names. Linnaeus, whose works provide the starting point for binomial nomenclature, may be abbreviated to L.; he is the only author allowed a single letter. His son's name may be written L. filius or L. f. A similar rule applies to the younger Hooker, whose name is abbreviated to Hook f.; this usage confused some readers of a previous *Lichenologia*. The younger Linnaeus did not long survive his father, which was why his mother, left with four daughters to marry off, had to sell the Linnaean collections. They were purchased by James Edward Smith, who soon afterwards founded the Linnean Society of London. The Society which still looks after the collections, has retained the spelling "Linnean", and is thus distinguished from the other Linnaean Societies that have been formed later in various parts of the world. The well-known engraving (see below) showing a Swedish warship pursuing the gallant British brig carrying the collections across the North Sea to England has no basis in fact.

CUDBEAR



"The Pursuit of the Ship containing the Linnaean Collection
by order of the King of Sweden."

FROM THE PRESIDENT'S CHAIR

As you will know *The Lichen Flora of Great Britain and Ireland* was published late last year. It was decided by the Council that a subsidy of £4,500 should be made to the publishers of the *Flora*. This was considered by the Council to be one of the best ways to further the object of the Society "to promote and advance all branches of the study of lichens especially in relation to those of the British Isles". The subsidy has resulted in a substantial reduction in the selling price and the book is really excellent value at £50 (£35 to BLS members).

The book has been selling well and after only 5 months over half of the 900 copies printed have already been sold. A recent development has been the decision of The Natural History Museum to run down its publishing section and to sell off most of the stock. The Council decided that the best course of action would be for the BLS to purchase the remaining stock of the *Flora* from the Museum. This we have now done and all future orders should be sent to Jeremy Gray (see address on inside back cover). The price and conditions of purchase will remain the same (see page 57). We are grateful to Jeremy for volunteering to handle the stock and deal with the dispatch on behalf of the Society. This purchase gives us control of the distribution of the book and will also make a substantial contribution to Society funds. This should offset the loss of anticipated income that has occurred from the large reduction in interest rates on the money the Society has on deposit.

Those of you who were unable to come to the AGM will see from the enclosed minutes that work is proceeding on publishing volumes of maps with suitable rubrics printed on the reverse. It is intended to publish these as loose-leaf fascicles of about 50 maps. This will enable individuals to file them in any order that they may prefer such as alphabetically or in families. It also means that if there are new developments in our knowledge of a species it will be possible to send out a revised map in the next fascicle. It is hoped that the first batch will be ready to send out at the end of 1993. This will consist of several fascicles and a binder to hold the maps.

This is a time of great activity in the Society and, in addition to the above, we are working on a number of major projects in conservation and would ask all of you to support our new Conservation Officer Dr Anthony Fletcher. Conservation is frequently the area where outside bodies and individuals come in contact with the Society and where we can often most effectively further the objects of the Society.

At the time of writing a new summer field season is about to commence and

I hope to meet many of you during the year. I am getting ready for the spring meeting in Lochinver but I do not think that I will take up the suggestion in Trevor Duke's information sheet to go swimming off north west Scotland in early April!

Frank Dobson

WHEN NATIVE LICHEN IS THREATENED, REINDEER FACE A SLAUGHTER*

Bill Culberson very kindly sent in an article from the New York Times of 26/12/92 concerning a local controversy in Southern Alaska. Hagemeister Island is a 24-mile-long uninhabited wildlife refuge in the Bristol Bay, 300 miles southwest of Anchorage. Reindeer, which unlike caribou are alien to North America, were introduced to the area from Siberia a century ago. Apparently an Eskimo took a herd to the island in 1965 and this now has severely overgrazed the lichen resource. The report says that 95% of the lichen has gone and that it will take 75 years to grow back! As a result 800 reindeer starved to death in 1990. Government marksmen shot 790 reindeer in November '92, most being left to decay because poor weather and an aircraft accident hindered the removal of the carcasses. This "wanton waste" outraged many local people; the mercy killing was later suspended. The situation is complicated by State and Federal regulations. Because of the island's wildlife status alien vegetation cannot be introduced: this means that no hay or pellets can be taken in. Since the reindeer are not native (they are "cattle with fancy antlers"), whereas lichen is, the primary wildlife concern is for the lichen as harsh as that may sound. Also, ownership of reindeer is restricted to Alaskan natives and the introduction of semi-domesticated herds to any region where they might interbreed or weaken the genetic stock of their wild caribou relatives is barred. A local Eskimo doctor paid for a rescue team to capture and air-lift starving reindeer to an abandoned farm on the mainland. This operation saved 120 animals, leaving c 190 still on the island. "The lichen is going fast" and the controversy continues.

*Original headline ran *Reality Destroys a Fairy-Tale Image. When a native plant is threatened reindeer face a slaughter.*

Peter Crittenden

THE AUTUMN MEETING IN NORTHERN IRELAND.

From Ballymoney to The Butter Mountain - or thereabouts

On 17th October 1992, Belfast's International Airport echoed to pagings for lost lichenologists. Those of us arriving by plane boasted of routine friskings and the necessity of explaining away potentially dangerous weapons, as hand luggage was turned upsidedown to reveal knives, hammers and chisels.

Brian Coppins eventually rounded us up and after a snack lunch we were off in a steady downpour, followed by hailstones, to tot-up a quick 93 spp., including *Caloplaca arnoldii*, from the Bonamargy Friary. It rained every day except one, so for weather, translate rain, hail, wind and cold, with some spectacular rainbows. But then, as Marion Allen, one of our cheerful "on the spot" advisers assured us, 5 days in Ireland without rain, would be considered a drought!

The meet attracted about a dozen of us. There were regulars, like Frank Dobson and Trevor Duke, a good sprinkling of younger members and two visitors from Germany: Heinrich Walther, (a chemist from the DoE in former E Germany) and Annelie Berghause. Annelie is becoming a familiar and welcome participant at BLS meetings. Heinrich rapidly became one of us with the purchase of a pair of bright green wellies.

Sandy O'Dare had charmed miracles of concessions from hotel proprietors for our particular needs. The Cushendun Hotel was a splendid Edwardian period piece overlooking the harbour. The front door bore the legend "British Lichen Society Only". There were ever-hot radiators and electric blankets in all our rooms and our "lab" was the spacious ballroom, with ready access to the bar. The owner, Randal McDonnell, was an Irish vet, vice-chairman of the local Council, expert cook during our six day stay - and a bit of a philanthropist, who refused to take money for our phone calls. He classified botanists, conservationists and such-like, along with train-spotters, as "screwballs"!

The DoE had generously provided us with a bus and with John Farren, an ecologist from the Countryside and Wildlife branch as our guide and "fixer". He ferried us around with unflinching skill and patience. To our delight, by the end of the meet he had taken the plunge, paid his BLS subscription and was looking at lichens from the inside.

Our first official trip was to the North coast, where *Sclerophyton circumscriptum*, *Rinodina lecideina* and *Caloplaca obliterans*, were present

among the basalt community on the dramatic "organ pipes" and "amphitheatre" of the Giant's Causeway. In the afternoon the hard chalk at White Park Bay was a complete contrast and held such species as *Placynthium subradiatum*, *Petractis clausa* and *Caloplaca cirrochroa*.

The oak and hazel woodland at Breen Wood on Monday, was not up to the expectations of those hoping to find a *Lobaria*, but Neil Sanderson immediately spotted *Arthonia elegans* on hazel, and other goodies included *A. arthonioides*, *A. stellaris*, *Lecanora farinaria*, *Byssoloma marginatum* and *Micarea hedlundii*. Cushendun wood in the afternoon produced *Arthonia anombrophila* and *Dimerella lutea* on ash and more little black dots on hazel.

Mark Seaward joined us for a short stay, waving mouth-watering lists of last century records of *Menegazzia* and *Pseudocyphellaria*, species which we hoped to re-find at Glenarm Deer Park the next day. In fact, Tuesday dawned the one bright morning and we revelled in the sunshine and lovely parkland setting, while *Mycomicrothelia confusa*, a neat little pyrenocarp with a smooth white thallus on hazel, *Tomasellia lactea*, *Calicium glaucellum*, *Trapelia corticola* and *Coniocybe furfuracea* were added to the list. In another part of the wood, Sandy found *Sticta dufourii* on damp, shady rocks and remarked on the surprising occurrence of *Thelotrema subtile* and *Pyrenula occidentalis* on old hazel overhanging the gorge.

On Wednesday we split up, the main group to look at more hazel and ash, Trevor and I to do some coastal square-bashing and Brian and Sandy to work on the basalt crags at Garron Point. This arrangement made it easier for us to find something not already noted by Brian, whose recording rate - even in atrocious weather, was c 150 - 200 spp. an hour! His identifications for the rest of us reduced lab work to a minimum.

In spreading out, some of us missed "The President's Coconut". When Mark arrived he had shouted across to Frank "Where's the President's bottle of port?" Frank took this to heart. No off-licence being immediately available, he purchased a coconut when we dashed out for our daily fix of fruit. This was ceremonially smashed with his hammer and shared among the lucky ones present. From a hard slog on the crags, Brian and Sandy reported *Dactylospora saxatilis* parasitic on *Pertusaria amarescens* and *Polysporina dubia*, and on the chalk cliffs below, *Placynthium garovaglii* and *Bacidia fuscoviridis*.

We separated again on Thursday. Nick Stewart, armed with a hook on the end of yards of white wire, gravitated each day towards water, on mysterious

quests of his own. Most of us took a chance on an overgrown colliery overlooking Murlough Bay.

Our trusty bus had begun to show signs of wear after some precarious climbs. A slipping fan belt was diagnosed, plus a slipping clutch and possibly worn disc brakes. We clambered into its warm haven for lunch, after which it refused to budge and we had to wait for an hour while its batteries were recharged. Our party then retired from the rain to a teashop.

In the meantime, Trevor and Heinrich had set off to study the chemistry of Irish whiskey at the Bushmills distillery - or so they said. Later they parted, Heinrich to do the 12 mile coastal walk to Ballycastle. After about 9 miles, he stopped a police car to enquire which was the best side of the road to walk on. The policeman, obviously deciding that it was safer for him not to be walking in the road at all, immediately flagged a passing van and asked the driver if he would see Heinrich safely to Ballycastle, which he did.

Neil Sanderson, Mary Scruby from the National Trust and Celia Spouncer, a young freelance consultant, exploring another area, found a previously neglected old coppiced woodland. They observed that the lichen flora was of only moderate interest, but that the woodland vascular flora promised a stunning display in the spring.

Trevor returned empty-handed from his field work to relate that the club head of his hammer, which, as he put it, had flattened a formidable amount of steel in its time, had flown off its handle over a precipice and landed in a whirlpool. Unable to retrieve it, he had thrown the handle after it for good measure.

On Friday we said farewell to Randal McDonnell, who had modified his judgement to pronounce us "civilized" screwballs, and set off towards Castlewella in C. Down. On the way, Celia Spouncer took a small party of us to see an amazing *Cladonia* heath she had come across in the heart of the Belfast dockland. It was an extensive, open site, under threat of improvement. As well as being tightly packed with a mosaic of 7 or 8 spp. of *Cladonia*, there were patches of beautifully fruiting *Peltigera rufescens*. A luxuriant mat of *Vezdaea leprosa* and *Sarcosagium campestre* also turned up on soil along the base of the wire enclosure.

In the afternoon, we were taken by Mary Scruby to look at Castleward Deer Park. Again, no lichen rarities, but a pleasant parkland flora of old oaks and ashes, carrying *Arthonia impolita* on the dry bark and components of the *Xanthorion* community. It might have been Suffolk, except for the local

abundance of *Parmelia reticulata*. The Chestnut Inn in the middle of Castlewellan, was more modern than The Cushendun. Lichenologists downed their pints of Guinness with the locals in the slightly rowdy atmosphere of the bar. But the hospitality was lavish. Our first evening was memorable for a little consternation caused when Brian's pipe in the lab, set off the fire alarm.

Howard Fox joined us for the last three days. Howard is an innovator. He has trained his nails so that they can be used like scissors, to snip off small corticolous spp. and bits of bark and he takes enviable sections using only a hand lens. He introduced a new fashion - that may or may not catch on - of wrapping a specimen (in this case a bit of algal slime), in a £10 note, complete with herbarium access number scribbled on the outside.

At Rostrevor wood on the Saturday, still in search of the elusive *Lobarion*, *Strangospora ochrophora* was recorded and Neil made one of the best finds of the meet - an "old woodland" species: *Phyllopsora rosei*. There followed a limited look at Mourne Park Beechwood, where Brian pointed out *Bactrospora corticola* . . . little black fruits on a white, cottony thallus, easily overlooked in the crevices of oak. A quick stop for some chocolate cake, which Marion Allen claimed to have cooked over charcoal, in the rain, by the wayside while we worked! Well, why not - in "Rainland"? (Heinrich's term for N. Ireland.) Then on to Tollymore Forest, where the early birds had already recorded *Lecanactis subabietina*, *Catillaria sphaeroides* and *Parmeliella triptophylla* from ancient oaks by the river.

Mr King, the hotel owner, looked in on the lab later that night, to see what these "lichens" were that he'd heard so much about. He stared and stared at the bits of moss and rock in dead silence. Then he muttered something unintelligible and made the sign of the cross! Those present interpreted this as a blessing.

We had to forfeit the summits of the Mountains of Mourne, which were lost in mist and snow, and looked instead at the pre-neolithic Murlough dunes and later at the Ballynoe standing stones, until the light gave out, the clocks having been put back.

Although it was disappointing not to have refound those *Menegazzias* and *Pseudocyphellarias*, nor really to have accounted for their absence, hundreds of records were added to the Northern Ireland list. According to Brian there were quite a few surprises, as many things were not there that should have been, and *were* there that shouldn't have been! What was not in doubt was the general agreement that it had been an exhilarating meet.

Postscript

Howard nobly volunteered to get up around 4 am on the 26th, to drive Heinrich and me to Belfast Airport, where Heinrich was catching an early plane. With time to spare before my flight, Howard and I did a spot of field work in the sub-tropical savannah-land of The Food Court cafeteria. About twenty trees were examined. They had been made by sticking artificial canopies of leaves into holes drilled into natural trunks and branches with the lichens still surviving on their bark. An intrigued waitress told us they cost £1,000 each. The following species were recorded: *Trypethelium* sp., *Opegrapha* sp., *Buellia* sp., *Pyrenula* sp., *Pertusaria* sp., *Arthonia cinnabarina* and *Graphis afzellii*.

Peggy Cayton

LICHENS UNDER METAL ELECTRICITY PYLONS

In 1990, Oliver Gilbert suggested that the area of soil under metal pylons was a neglected habitat and a potentially interesting one (*Bulletin* 67: 18). During field work in January 1992, I had the chance to look under several metal electricity pylons in ploughed fields at Pettistree, Loudham and Campsey Ash, near Wickham Market in East Suffolk (all in 10km square 62/35; VC 25). The localities were all on Boulder Clay and consequently there were many flints in the fields, including under the pylon. Examination of the latter showed that many were colonized by *Bacidia saxenii* (determined B J Coppins), even growing on metal drips from the pylons. In fact, with the exception of one flint with *Micarea* cf. *sylicola* on it, *Bacidia saxenii* formed a monoculture. The clay soil under the pylons was too disturbed for terricolous lichens. Such an unusual habitat surely merits further study in different areas of the country - so all of you out there !

Peter Earland-Bennett

INTERNATIONAL ASSOCIATION FOR LICHENOLOGY SUBSCRIPTION FOR 1993-1996

Subscriptions are due for the next four year period and UK members (or new members) can pay their subscription in £ sterling to T H Moxham, Mayfair House, 21 Ashgrove, Peasedown St John, Bath, Avon, BA2 8EB: cheques for £13.00 payable to "International Association for Lichenology".

Tim Moxham

CHURCHYARDS PROJECT: A R. A. C. E. AGAINST TIME?

Stoneleigh

Thirty-four people including a number of non-members attended the first BLS Workshop/Seminar on Churchyard Lichens at Stoneleigh on 10 October. The start was somewhat delayed by the security surrounding Princess Anne, who chose to visit an adjacent building on the Royal Agricultural Showground at the same time as we were due to begin. After being welcomed by Kery Dalby and introduced to the main purpose of the day, we went on to enjoy illustrated talks from Peter James and Francis Rose who made us aware both of the supreme importance of churchyards as lichen sites, especially in lowland Britain, and of the diversity of habitats that may be present at any one site. Later in the morning, we visited Stoneleigh churchyard to explore some of these habitats at first hand. Peter and Francis demonstrated techniques for collecting small samples without causing substrate damage, and Dr Eric Robinson, President of the Geologists' Association helped us to appreciate the variety of stone types present. In all, 66 species were recorded, including the first inland churchyard record of *Acarospora impressula* on a low sandstone slab.

In the afternoon, I distributed a document entitled "Towards a Policy for Recording, Assessment and Conservation" and outlined its salient points. If you would like a photocopy, please send me a self-addressed A4 envelope (34p stamp) and either a cheque for £1 or 6 second-class stamps. Some of the problems and possible solutions were then discussed in four groups. There followed a short plenary session, after which Eve Dennis, in a very positive manner, introduced us to the Living Churchyard Project and the wider perspectives of conservation. Finally, after a cup of tea, we were shown some splendid slides of churchyard species by Frank Dobson.

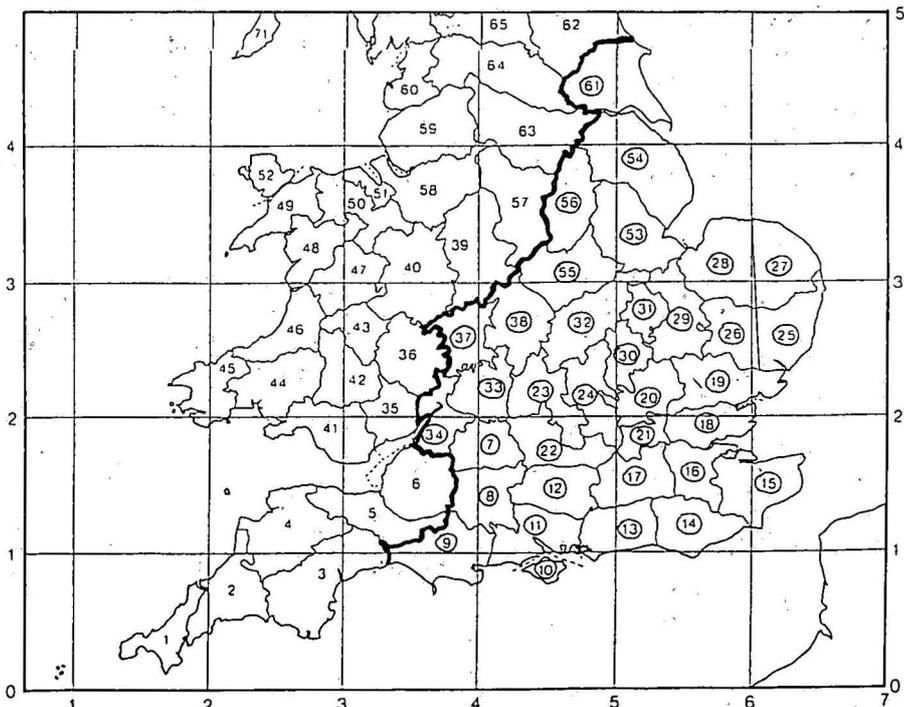
On the day before the meeting, eleven of us visited Mixbury churchyard in north Oxfordshire and Wappenham in south Northants. At the first site, we found *Acarospora cervina*, *Lecania turicensis* and some well-developed *Lempholemma myriococcum* on the slope of a buttress. The strange, unnamed sorediate *Lecanora* was much in evidence particularly on the mortar at the east end of the church. Every time anyone visits Wappenham new discoveries are made. This time, we found *Physconia perisidiosa*, the first vice-county record of *Lecanora conferta*, and the first on stone in any churchyard to my knowledge of *Parmelia laciniatula*. The total has now risen to 127, the moral being that rich churchyards require repeated visits! At the end of the day, the group had a pleasant evening meal at The Crown in Brackley.

Churchyards' Subcommittee

The four discussion group leaders at Stoneleigh (Keith Palmer, Ken Sandell, Don Smith and John Walton) have joined me to form a subcommittee of the main BLS Conservation Committee. Three of us met at my home in late October and the others contributed with lengthy letters. Much of what follows stems from either Stoneleigh or our subsequent deliberations.

The Churchyards Project: Phase 1

The aim of Phase 1 is to study the lichen flora of sites in those 35 "lowland" vice-counties in which such man-made structures provide the major saxicolous habitats (see map). It is hoped that future phases will cover the south-west region, Wales and the border counties, northern England, Scotland, and Ireland. The Subcommittee deliberated for some time as to where precisely to draw the line. We decided that it was better to decide



Watsonian vice-counties: the 35 "lowland" vice-counties of Phase 1 of the Churchyards Project

wrongly than not to decide at all! If you happen to be recording beyond the pale, as it were, please don't give up. Your records are still very much needed. I'm delighted that both Fox and Gosling have now responded to earlier entreaties and joined the main flock!

The four strands

The project is made up of four essential elements, these being Recording, Assessment, Conservation, and Education (hence the acronym at the head!). These strands are very much interwoven. Accurate assessment of both species and sites is based on efficient recording. And one can't begin to assess either in isolation: an overall picture is required so that their importance relative to other species and sites can be adjudged. Similarly, while conservation and education can proceed in general terms, they need also to be directed at specific instances based on soundly acquired knowledge.

Recording of sites and species

There are approximately 10,000 Church of England sites (based on Diocesan figures) in the prescribed area, as well as buildings belonging to other denominations and faiths. To my knowledge, at least 1750 of these have been surveyed, probably a good many more. I have in my possession 500 full site lists and some species information, derived mainly from *The Lichenologist*, for a further 600. If, unbeknown to me, you have surveyed a churchyard in any of these vice-counties, please drop me a line. Ideally, I would like the following information.

SITE NAME/ GRID REFERENCE/ RECORDER(S)/ DATE(S)/ SPECIES
TOTAL

These lists are kept in alphabetical order for each vice-county. If you can spare the time, I would value, in addition, full species lists for the richer yards (75+ in the Midlands and South, 50+ in the North) and lists of the less common species for the others. It is important that you indicate the main substrata beside the species. I need to know, if, for example, you have recorded *Parmelia sulcata*, whether it is saxicolous, corticolous or lignicolous. The more detailed and precise the substrate and habitat information is, especially for the rarer species, the better. The main saxicolous list includes species overgrowing bryophytes or in soil crevices on stone. The abbreviations sx-by or sx-t next to the species would clarify this saxicolous association.

Assessment of species and sites

To begin with, I am focusing on the saxicolous species (as defined above) of this lowland area. The list, at present, consists of 332 taxa. Of these, 171 have been recorded from less than 10 sites (58 at only one) and have been

given a three-star (***) rating. There are 75 two-star (**) taxa recorded from 10-50 sites. This leaves 86 more common taxa. So far, these have not been subdivided on a precise mathematical basis. 32 one-star (*) taxa have a more scattered or localised distribution, while the remaining 54 occur at most reasonably favourable sites in most of the 35 vice-counties. Some fascinating regional variations are already being revealed and there could be much scope for comparative analysis in the future.

Full information is being kept for all *** and ** species recorded from less than 25 sites. This consists of site, grid-reference, recorder's initials, date found, and, in addition (if known), substratum, habitat and herbarium details and references to appropriate literature. To save time and space, the more abundant species are summarised as in the example below, the numbers in brackets being the 35 vice-counties:

<i>Species: Caloplaca isidiigera</i>			<i>Site Total: 167+</i>	<i>Assessment: *</i>		
[7]-4	[12]	[17]-1	[22]-1	[27]	[32]-68	[53]-1
[8]-3	[13]-5	[18]	[23]-14	[28]-1	[33]	[54]
[9]-1+	[14]-10	[19]-1	[24]-8	[29]	[34]-1	[55]
[10]-1	[15]-4	[20]-1	[25]-1+	[30]-2	[37]	[56]
[11]	[16]-3	[21]	[26]-5+	[31]-1+	[38]-13	[61]-7

Where the literature indicates that a species is present, a nominal 1+ is recorded and where described as "common" or "frequent" a nominal 5+, until such time as I have more precise records.

Site assessment is still in its infancy. It was suggested by the Subcommittee that if the species and star totals for a particular site were added together and then divided by two the resulting quotient for the richest churchyards would not be too dissimilar from the index for the richest woodlands. For example, the above-mentioned Wappenham, one of the richest known saxicolous sites, has 127 species, 119 of which are on stone. All 54 unstarred species are present, and 29 of the 32 * species. There are also 23 ** species and 13 *** species. Using the above formula, a quotient of 121.5 is derived. This, at present, does not take into account the 6 lignicolous and 2 corticolous species, all of which are relatively common. A full list, including star-ratings, for lichens growing on bark, wood, moss and soil away from stone structures should be available later in the year. In the meantime, I would value both the testing of this procedure by field workers and any constructive comment.

Conservation

This will be discussed further in future articles. There is a clear need for us, as individuals and as a Society, to convey a positive conservation

message both at the local level by meeting up with incumbents, parochial church councillors (or their equivalents), and at regional and national levels through Diocesan bodies and the like. Problems often arise, as Don Smith graphically described in an earlier article (*Bulletin* 67:14), when a church is in need of repair. Ishpi Blatchley has also pointed out recently that a number of rich churchyards in Kent have applied to have kerbstones removed and that a prerequisite of gaining the necessary faculty is to produce a complete record of all the graves and their inscriptions. This inevitably involves cleaning off some of the lichens. The Society, through its Conservation Committee, must first identify all the parties involved in such situations, and then liaise with them. Dialogue and reconciliation are just as necessary in this field as in other church matters.

A leaflet "Lichens in Churchyards" written by Frank Brightman and Jack Laundon in 1984 is still available. If you send me a self-addressed A4 envelope with a 34p stamp, I can supply you with a dozen. When I carry out a survey, I usually leave one in the church or porch and attach a self-adhesive label with my name, address, and telephone number at the end. This leaflet, a revised version of which is currently being planned, is also included in the Living Churchyard pack written by Marya Parker of the Suffolk Wildlife Trust and obtainable from Eve Dennis, Arthur Rank Centre, Royal Agriculture Centre, Stoneleigh Park, Warwickshire CV8 2LZ, post free for £6.

Education

I have been discussing with Eve Dennis the possibility of producing a pack similar to the one above but specifically aimed at schools and Watch groups. This would, of course, cover all aspects of churchyard natural history. It is important also that we should be concerned with education in the wider sense of raising public awareness in general and that of other naturalists in particular. Our work on churchyard lichens will receive a certain amount of publicity in a forthcoming article by Eve describing the Living Churchyard Project which is to appear in *British Wildlife*. In Vol 3 No 3 of this journal, Oliver Gilbert contributed a leading article on The Ecology of an Urban River, while George Barron writes a regular column on lichens and donates his fee to the Society. It appears bimonthly and members of the BLS may obtain it for the concessionary rate of £15.95 per year from the Subscriptions Dept., British Wildlife Publishing, Lower Barn Rooks Farm, Rotherwick, Basingstoke, Hants RG27 9BG. I hope, before too long, to submit a piece on the Churchyard Lichen Project.

Other News

By the time you read this, a Churchyard Care and Wildlife Project will have been launched on 14 May at Iffley Church in Oxford by Francesca Greenoak.

The publicity leaflet has been sent out to 360 clergy. I have been invited to set up a small exhibition and to be on hand to give guidance and answer questions. The following day, I am running a course on Churchyard Wildlife with Marya Parker (see above) in Peterborough for Cambridge University Extramural Studies Department. I have also been asked by Canon Jack Higham of Peterborough to carry out a survey of the cathedral and precinct. This follows on from the Gloucester project reported in the last *Bulletin*. As it is likely that we will be asked to assist with similar projects at Ely and Worcester, please let me know if you are willing to become involved.

How you can help

I have already indicated a number of ways in which you can help to further the Churchyards Project. If you are an active field lichenologist, you will be only too well aware of how much time is taken up by outdoor surveys and the associated microscope and herbarium work. And churchyards have an irritating habit of moving further and further away as time goes on! In addition, I find I spend an increasing number of hours of virtually every day at the computer. The postbag grows almost daily and includes those annoyingly vague pleas for help (without exception, unaccompanied by SAEs) from students, and requests from fellow-lichenologists from as far away as Belgium, Spain and Israel: on one occasion I even had an invitation to attend a Crematoria Congress on Jersey! Because of other commitments, I have managed only ten site surveys in the first three months of the year, but I am determined to achieve at least 100 by December. You can help best by likewise carrying out as many surveys as possible and ensuring that the resulting cards or sheets contain all the requisite, attendant information. In particular, very few sites have been visited in Wilts, Herts, Cambridge, Bedford, Gloucester, Worcester and Notts. Please don't forget to send your lists to Mark Seaward as well as to me!

Postscript: two new Lecanora species!

Invariably, as soon as a species list is printed it is already out of date, and the minute an article has been signed, sealed and dropped through the postbox to the editor something almost earth-shattering occurs! The ink was hardly dry on the enclosed checklist when Brian Coppins received a letter from Dr Irwin Brodo to say that the mysterious soresiate *Lecanora* found in so many Northamptonshire churchyards and by Don Smith in Yorkshire was in fact *Lecanora pannonica* Szatala 1954, new to Britain. Further details will be revealed in the next *Bulletin*. More exciting still, Keith Palmer and Ishpi Blatchley on their way to the Bristol course ("The Lichens of Disused Railways") called in at Cricklade churchyard (VC7, North Wiltshire, GR 41/09-93-) and found a crust rather like *Caloplaca*

teicholyta, but with pruinose lecanorine apothecia and a C+ orange reaction. The small specimen shown to Brian Coppins over the weekend was sufficient to excite him into driving over to Cricklade late on Sunday afternoon where he was able to confirm that it was, as he had hoped, the first record this century of *Lecanora pruinosa*! This is a Mediterranean species found previously only at Cleeve Hill, Somerset by *William Joshua* in 1875 (Hb:BM). Sandy O'Dare and I took some photographs and endeavoured to prevent Brian from leapfrogging the tombstones! The species is in excellent condition on the top of three ancient chest tombs (one dated 1655) and on chamfered plinths and buttress slopes on the south and east sides of the church. As you will see in the checklist, it is on the list of species thought to be extinct. No longer!

Tom Chester
19 Lawyers Close
Evenley, Brackley
Northants NN13 5SJ
Tel: (0280) 702918

**RICHARD SPRUCE CONFERENCE,
YORK 20-22 SEPTEMBER 1993**

The Linnean Society will be hosting a Commemorative Conference on Richard Spruce (1817 - 1893), botanist and explorer, on the above dates at the University of York. A varied and interesting programme will include a public lecture by Prof G T Prance (Kew), a reception at York Museum, a remembrance service at Terrington where Spruce is buried, visits to Spruce's home and Castle Howard, a conference dinner, and lectures, posters and exhibits on "Richard Spruce's contribution to botanical science" and on "Botanical exploration of South America". Accommodation has been arranged at the University of York. The normal registration fee is £30.00, but for BLS members this will be £20.00; the student fee is £10.00. Those wishing to participate (including presentation of poster or exhibit) should apply to me for a registration form as soon as possible.

Mark Seaward,
Department of Environmental Science
University of Bradford
Bradford BD7 1DP
(Tel: 0274 384212; Fax: 0274 384231)

SOME THOUGHTS ON DATA OWNERSHIP

One of the last matters to come to my attention as Conservation Officer and Chairman of the Conservation Committee was that of ownership and use by others of data on lichen species and sites of lichenological interest. The President asked me to outline the basic issues (they go far beyond the confines of the Conservation Committee). After a brief excursion into the morass that is copyright, and intellectual property law (i.e. The Copyright, Design and Patents Act 1988), I returned to dry land with the following thoughts.

Copyright in a work is automatic - it does not have to be applied for. Additionally copyright is not the same as ownership, and both can be transferred by mutual agreement. The purpose of copyright is in essence to protect authors and artists (for a period up to 50 years after their death) so that the fruits of their labours do not accrue to others without the express permission of the originator (or whoever is the current copyright holder). The earlier weighting of its interpretation in Britain as being primarily financial ("You owe me £££'s for this infringement") is gradually taking on a stronger continental flavour with the incorporation of moral property rights ("... and it was my idea in the first place") into the legal framework.

When we write scientific papers and quote from published texts, we are used to acknowledging the source of the information in a list of references consulted. Even when the cited author is still alive, we do not need to seek specific permission to quote because this is permitted as a "fair dealing" exception, and is the standard procedure with, say, research papers. When, in contrast, a writer makes use of unpublished data, extracts from letters etc. which are still subject to copyright (and perhaps even - horrible thought - labels on lichen packets made by the Society's referees?) - then permission has to be sought before such material is copied or quoted. Draft texts etc. would certainly come into this category. And as a side issue here, it seems that an author loses the moral right to be identified as author in a work which has Crown copyright - unless of course his name is cited in that work as being responsible.

An important aspect of copyright law concerns confidentiality. If reports or papers are stated to be for restricted circulation only or are marked confidential, then it is a legal necessity to approach the owners or publishers for permission to quote. The penalties for transgression here can be severe.

A more complex case for the BLS is the ownership of data collected by individual members and then simply donated to a herbarium or database

belonging to the Society (or say a museum). Without sinking too far in the morass, it is clear that copyright must still rest with either the original lichenologist, or the BLS (or museum). Beware though: unqualified donation certainly does not imply parallel transference of copyright to the party receiving the donation.

After the expiry of copyright, unpublished documents (and presumably those annotation on packets and the like) will be free to be copied without restriction - with moral integrity remaining as the guardian of the originality of ideas. However, if the documents etc. are housed in a library or museum, the legal owners have the right to make a charge (an access fee - nothing to do with copyright, simply an assertion of ownership) to those who wish to reproduce paintings or drawings in their care. In the normal run of things however, nobody worries and nobody cares at all about data ownership. We present our findings or our material and are happy that it is in safe hands. The Law may however think differently.

The twist for us concerns the hard, competitive environment in which consultancy firms and the like make their living (i.e. their salaries and profits) from the sale of data and know-how, and the publication of reports or books. It is quite clear to me that once we approve their requests, such bodies should always be charged a fee by the BLS for the use of unpublished information obtained from the Society's records. This fate would not befall bona fide researchers, but I am sure that it should apply to all external profit-making bodies. The BLS (and sister societies) should realise that data are worth money - the commercial world certainly knows this. Payment of a fee would go a little way to compensate for the enormous amount of effort and expertise provided by members for no personal financial reward - and at least the Society would benefit.

And do not assume that everyone plays fair - I personally have had experience of the legal advisors to a development company searching waste bins for papers, and then grilling me about past scientific consultancies traced through documents found in the rubbish. The BLS will be spared exactly such an experience, but we could well see complications over our unpublished data being put to uses that we had never originally intended.

So, to try to minimise future problems over ownership/copyright, I suggest that all BLS members who wish to make use of unpublished BLS data for research contracts or reports/information sent to outside bodies should first check that this is acceptable to Council, agree that copyright remains with the BLS (or its members), agree on access fees (if appropriate), and - most important of all - fully acknowledge the source of the information in the

usual way. I would hope that such a procedure would safeguard the Society's (and individual's) interests, though I wouldn't trust my interpretation of copyright law too far . . . if you have doubts then you could start with W R Cornish Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights. 2nd edn, Sweet and Maxwell, London, 1989, or (if you have spare cash in your pocket after your journey to your nearest law library) seek specialist advice.

Kery Dalby

BBC SEEK WILDLIFE MYSTERIES

The BBC Natural History Unit is launching a new British Wildlife series for BBC-1 this summer called "*The Nature Detectives*". The 30 minute programme of 6 will be a magazine format and broadcast mid-evening on one of the weekdays.

"*The Nature Detectives*" are looking for questions and mysterious stories on British Wildlife that people would like investigated by our detective team. The programme will use the latest technology to spy on nature and help find the answers. It is a show where both public and presenters turn detective.

"*The Nature Detectives*" team will be Fergus Keeling, Nicola Davies, Simon King, Martha Holmes and Chris Packham, who will use their skills with the help of expert naturalists to investigate your queries.

We want all kinds of questions, whether it is about something mysterious stirring in your loft or digging up your lawn, or whether you want us to look into what otters get up to in your local river. We are also interested in any home video or photographs that show unusual wildlife or animal behaviour in your garden, or elsewhere that you have been spying on and would like to share with us.

Please write to the following address if you have any queries for *The Nature Detectives*:

Paul Appleby, Producer
BBC Natural History Unit
The Nature Detectives
P O Box 229, Bristol
BS99 7JN

LICHENS IN CONSULTANCY

This short communication is an opportunity for me to thank all of those in the Society for their efforts in collecting data or in conducting experiments, and who now find themselves being "market tested" and looking to win contracts for their organisation from consultancy, by giving a few helpful pointers. So if you once thought life would be an endless churchyard of lichen clothed stones but now think otherwise, a few words on how you too can work long hours in the rain and spend all night writing the report, but without the beer, pipe smoke and camaraderie of the Society on those weekend forays, because you are . . . **working for the opposition!** No I didn't say that, but I know it's been said (someone also said that walls have ears, remember all those nice walls around those churchyards, well now you know).

One useful rule is objectivity. Therefore, given the same terms of reference (TOR) for the study from the raving greens or from the cigar-smoking (remember lichenologists smoke pipes, altogether different!) capitalist polluters, you would come to the same conclusions. And of course you should get largely the same TOR from different sides of a situation, though possibly the rose-tinted view of one side may affect their perception of the situation. This is an area which is basic to the ability to properly phrase null hypotheses and by doing so ask the pertinent questions correctly (so they can be answered). Many data exist, particularly distribution data, that only illustrate the circular logic of setting a lichen-pollution scale on distribution associated with (often inadequate) measures of pollution, then being pleased that a new distribution study somewhere else using this scale shows the location of areas of industry (we may be missing an opportunity here to show the government a new economic indicator). Distribution studies are important, but they need to be tied to relevant and reliable measured pollution data, or at least to the information about the pollution data provided in the report. Therefore, while you may personally think the development of yet another superstore will lead to the end of rural Britain, you can only say so, as a consultant, if you have supporting evidence. The same goes for a power station, wherever it may be; if the data when analysed do not illustrate the certainty or even the possibility of effects then there can be no reason, on objective grounds, for opposition.

Another aspect of being a consultant is that you have to possess (as many of us do) some information, knowledge or wisdom that others don't have but want. Therefore you may hold detailed records on the occurrence of a lichen species in three vice-counties (which need to be converted to "10 km square" records), which because of some development are of relevance. You can

then provide an objective report on the distribution of this species, its significance regionally, nationally, within the ERM (for finding industry!), and on what is known from the literature about its response to climate and pollution. You may have been through sufficient nights burning candles identifying lichens and spots on TLC plates or collating the results of analyses on lichens from around the world, to have become knowledgeable on a particular subject. When this is of relevance to a particular situation this enables you to offer your services to a party who requires the information in an interpreted analysis that benefits from your knowledge (added value). Finally, when you have been involved either long enough or your subject is sufficiently obscure that no one else actually knows what it is, you may obtain the recognition of having wisdom. This was previously thought to take a lifetime to accumulate, but that went out of fashion and we had experts on all sorts of things; fortunately it is again becoming recognised that wisdom reflects experience over time and across a range of circumstances. If you are able to offer someone expertise, whether information; knowledge or wisdom, where you provide a valuable service (less expensive than them reinventing the wheel) then you are in a position to act as a consultant and should be rewarded accordingly (some of you may not like this bit either because you feel that we should do it for the enjoyment alone or because the reward isn't large enough).

Yet another aspect of being a consultant is being able to produce what you said you could, properly reported and in a timely fashion. To be able to accomplish these requires some planning and foresight, but these come with experience and practice. One of the best rules to follow at the beginning is that of Green (1979, *Sampling Design and Statistical Methods for Environmental Biologists*, John Wiley and Sons): "Be able to state concisely to someone else what question you are asking. Your results will be as coherent and as comprehensible as your initial conception of the problem". Thus at the outset, plan the programme of your study and work out the Table of Contents of the final report. In this way you can see at the outset just what you are trying to do, why you are doing it, where it will fit in the report (if it doesn't go in the report why are you doing it?), and when it has to be done in order to do the next bit, and so on. This really does work; its not just from a seminar somewhere (but don't imagine I've told all: remember I do this for a living).

Therefore the BLS and its members have increasing opportunities to contribute and make use of the information, knowledge and collective wisdom they do indisputably hold. They can also make important contributions to the decisions and the decision-making process of developments that would affect lichens with carefully designed and executed

studies. This will lead to more BLS members providing consultancy advice to a range of interested parties.

Finally, if this appeals to you, ask yourself where would we be without the industrial revolution!

John Henry Looney

KNITTING CHART FOR BLS LOGO

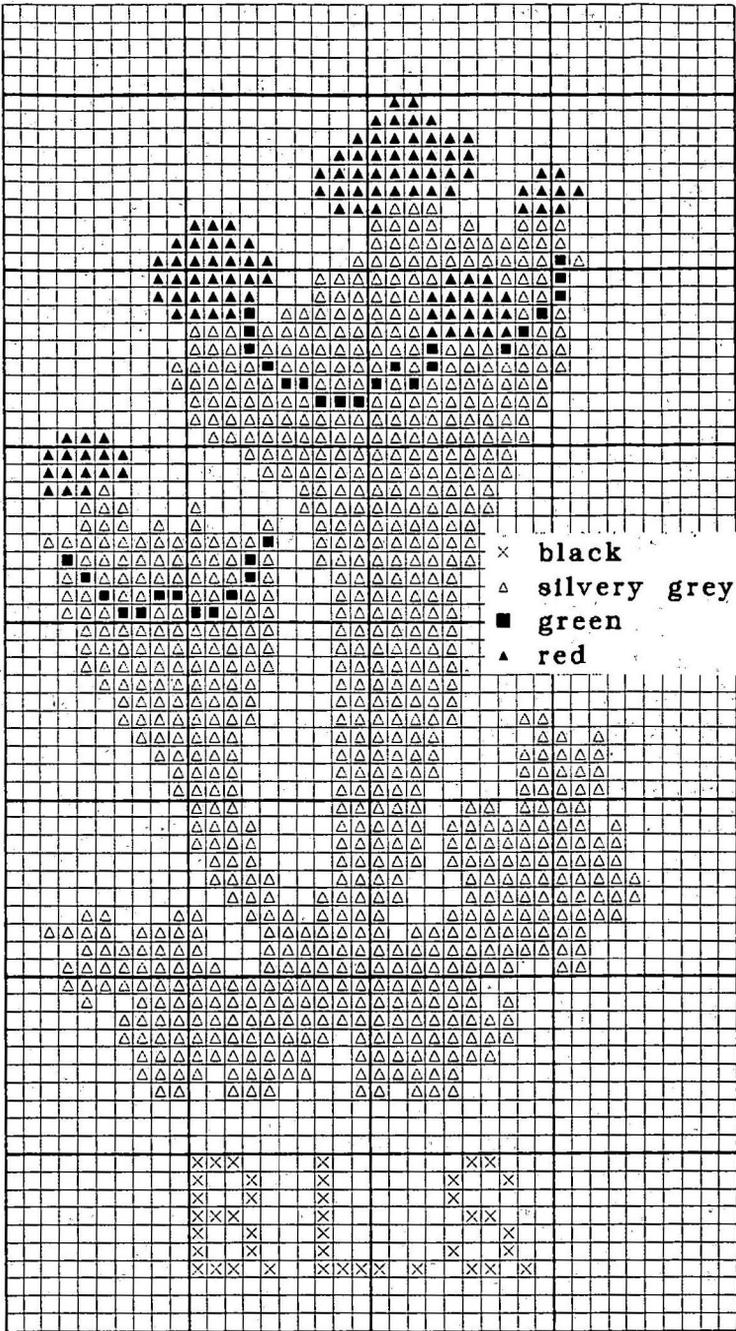
In response to several enquiries regarding the BLS logo on the President's green sweater, we are reproducing a knitting chart for the design in this issue.

For those readers who are interested (or know a man, or woman, who is) the original was knitted in double weight knitting wool on 3 $\frac{1}{4}$ mm and 4mm size needles (or sizes 10 and 8 in the old money). The design can be knitted into any standard design double knitting wool pattern, and works out approximately ten inches high and six inches wide. If a 3 or 4 ply wool pattern is used the logo will be proportionately smaller.

The colours of the lichen should be as near as possible to an actual specimen, but obviously the lettering can be any shade which contrasts well with the background colour or can be omitted altogether. The easiest way to work out the position is to knit the back of the sweater to the required size first and count up the numbers of rows and stitches which would be required around the design on the front. Alternatively, it would be possible to use the chart to work the design on a plain bought sweater in either cross-stitch or Swiss darning.

The President would be quite happy to pass on any queries on this subject, but is not taking orders for knitting whole sweaters!

Frank and Mary Dobson



Knitting chart for BLS logo

LETTERS FROM OVERSEAS CORRESPONDENTS

News from Romania

In my previous letter (*Bulletin 68*) I wrote that the number of Romanian lichenologists has increased by two young research workers: Manuela Zamfir (Romanian Academy, Bucharest) and Florin Crisan (Faculty of Biology, Babes-Bolyai University, Cluj). Both are on PhD programmes in lichenology. Miss Zamfir's interest concerns terricolous lichens from the dunes and arid plains of the Danube Delta, and that of Mr Crisan the lichen flora of the Western Carpathian Mountains.

Professor Roland Moberg from Uppsala spent several days in Romania on an inter-academic exchange programme. He put on a lichen course in the town of Sinaia (Bucegi Mountains), between 29 September and 3 October 1992, which was attended by not only lichenologists but also young biologists working in Romanian Natural History Museums.

In November I was able to spend 10 days in the Institute of Botany, Karl-Franzens University, Graz, Austria, enjoying the hospitality of Professor Josef Poelt. Here I completed taxonomic and phytogeographical papers on the Stictaceae and Pannariaceae in Romania (now in press) and also took advantage of the vast lichenological literature.

In November 1992 I finished distribution maps for *Gyalecta jenensis* and *Syanlissa symphorea* species including all the European data, and sent them to Cristoph Scheidegger (Switzerland) who is the leader of "Lichen mapping in Europe". I was sorry that I could not participate in the IAL Conference in Lund in order to discover how this project is progressing.

I have not abandoned my research on lichens as bioindicators of radioactivity level: I have two papers in press on this subject.

Katalin Bartók

Czechoslovak lichenology in 1992

In addition to the two previous articles, written by the senior author (see *Bulletin 68* and *70*), we now report the lichenological events of 1992. Activity has focussed mainly on field excursions and meetings.

The annual floristic summer school organised by the Czechoslovak Botanical Society took place this year in Volary, S. Bohemia, during July 5-11. This

was the 32nd summer school and was attended by almost 200 botanists! Five cryptogam excursions in the Šumava Mountains (Böhmerwald) also took place as part of the summer school with an average of 20 participants. On 14 April, the Bryological and Lichenological Section of the Society organized an excursion to the rocky valley of the Sázava river and nature reservation at Medník hill. The excursion was attended mainly by students of Charles University (c. 20 participants). On 24 October seven members took part in a lichenological field trip around the town of Zdice (man-made substrata, diabase) and at the locality of Vraní skála (ludite), where *Acarospora oxytona* and *Dimelaena oreina* were confirmed. J Liška demonstrated and determined lichens during these excursions.

The 5th Bryological and Lichenological Days (28 September - 1 October) were held in Špindleruv Mlýn in the Krkonoše National Park (Riesengebirge, N Bohemia). This annual field meeting was organised by Z Soldán and J Liška and attended by 27 participants including P Scholz, J-G Knoph and F Müller from Germany. It comprised a workshop with 11 lectures (of which five were on lichens) and two whole-day excursions. The first was to old abandoned mines in the Obří důl valley with ferrophilous lichens and the second to a mountain ridge on the border with Poland to examine granite rocks. At the latter site the epiphytic lichen flora is extremely poor owing to high air pollution levels and even the forests are heavily damaged over large areas.

Czechoslovak lichenologists were also active abroad. In April Dr A Vězda and Prof J Poelt participated in a lichenological expedition to the islands of Lampedusa and Linosa in the Mediterranean Sea, organised by Prof P L Nimis on behalf of the Italian Lichenological Society (SLI) together with University of Trieste. They collected specimens for A Vězda's new exsiccata called *Lichens rariores exsiccati*. The Second IAL Symposium "Progress and Problems in Lichenology in the Nineties" took place from 30 August to 4 September at Lund/Hemmeslöv, attracting 235 people from 33 countries. A Lackovicová and J Liška were among the participants, each presenting a poster. At the IAL General Meeting "Acharius Medals" were awarded for long and distinguished contributions to lichenology. Among the 13 recipients was A Vězda, although *in absentia*. For details of the Second IAL Symposium see *Bulletin* 71.

An important activity is the publishing of the biannual newsletter *Bryonora*. Starting last year a new typesetting technique resulted in a considerably better look to the newsletter. In *Bryonora* 8 there is a short article (in Czech) on etymology of the word lichen in various languages, and in *Bryonora* 10 there is a summary of P Scholz's contribution during the field

meeting in the Krkonoše Mountains ("Epiphytic lichens and air pollution in Sachsen-Anhalt"). Included among the regular features were Czechoslovak lichenological bibliographies, short descriptions of lichenological/bryological societies (Bryologische en Lichenologische Werkgroep, and Società Lichenologica Italiana), anniversaries (E Senft, V Spitzner, KB Presl, V Los, P Hora, L J Čelakovský, E Bayer, F Fóris), and obituaries (A Alborn, S Hattori). In 1992 a special third issue of *Bryonora* 9 was published containing proceedings of the 4th Bryological and Lichenological Days at Smolenice 1991 entitled "Decline and conservation of lichens and bryophytes in Central Europe" (see *Bulletin* 70). The lichenological part of this special issue contains contributions from V Alstrup, K Bartók, E Farkas & L Lökös, Z Kyselová, A Lackovičová & I Pišút, L Lipnicki, J Liška and P Scholz.

The splitting of Czechoslovakia brings, of course, some organisational problems for our section; other difficulties are connected, as anywhere at present, with financial support for science. Friendship and contacts in the family of Czech and Slovak lichenologists and bryologists are substantial, however, and future common activities are assured. Accordingly, the next meeting will take place during the next bryological and lichenological days in the High Tatra Mountains, N. Slovakia, organised by R Šoltés and Z Kyselová.

Zdeněk Černohorský and Jiří Liška

SOIL BINDER

There have been a number of articles about fixing the substratum of terricolous lichens which recommend sending off to a chemical supplier. The problem with aqueous solutions, especially if at all viscous, is that percolation of fine tilth is very slow. However, almost instantaneous penetration to any depth is achieved by a solution based on an organic solvent. If you prefer to buy one ready made, then Windsor and Newton's aerosol fixative designed for charcoal and pastel crayon drawings, and available at any art shop, is excellent. I made all my tests on loose, dry builders sand on the assumption that anything that will bind sand will also bind soil.

In order to make up your own solution you will need a suitable solvent. Cellulose thinner is ideal and can be obtained from a paint or motor shop. This is cellosolve acetate* (ethylene glycol monoethyl ether monoacetate)

but acetone* or ethyl acetate* could also be used. The solute I have used is expanded polystyrene**. A concentration of between 5 and 8 percent is ideal; anything more concentrated becomes noticeably thicker and at 20 percent is too viscous for good penetration. This material has a density of between 0.02 and 0.03 g cm⁻³ and a block about 3.37 cm cubed (c 38 cm³) weighs 1 g so that a simple calculation will enable a suitable weight to be cut off a sheet if no laboratory balance is available. An ideal stirrer can be made from a 10 cm length of stiff wire with 1 cm bent over at right angles. Rotated between the fingers it performs with excellence. Pieces of polystyrene are broken off and dropped into the solvent with stirring. They dissolve almost immediately with apparent effervescence but this is just due to the liberation of air pockets.

The completed solution can be applied with a medium-to-large artist's paintbrush with more of a shaking-off than definite painting in order to avoid transferring copious amounts of soil and debris back into your solution. If the material is placed upside down in a petri dish or tin lid and covered with another container for about half an hour before putting outside to dry, one has the added advantage of causing a rain of dead or dying mites and other nasties falling from the specimen due to the (to them) lethal fumes. That should put paid to all that hidden munching of choice prepared specimens.

Don Smith

*(*These substances are volatile and inflammable, and are either irritant, harmful or toxic by inhalation, ingestion or absorption through the skin. Use in a well ventilated area [preferably in the open-air] and avoid contact with skin. In the event of contact with skin, wash with soap and copious water; in the event of contact with eyes or ingestion, seek medical attention. ** Polystyrene is also irritant and harmful; observe precautions similar to those above. Ed.)*

THE ART OF M C ESCHER AND LICHENS

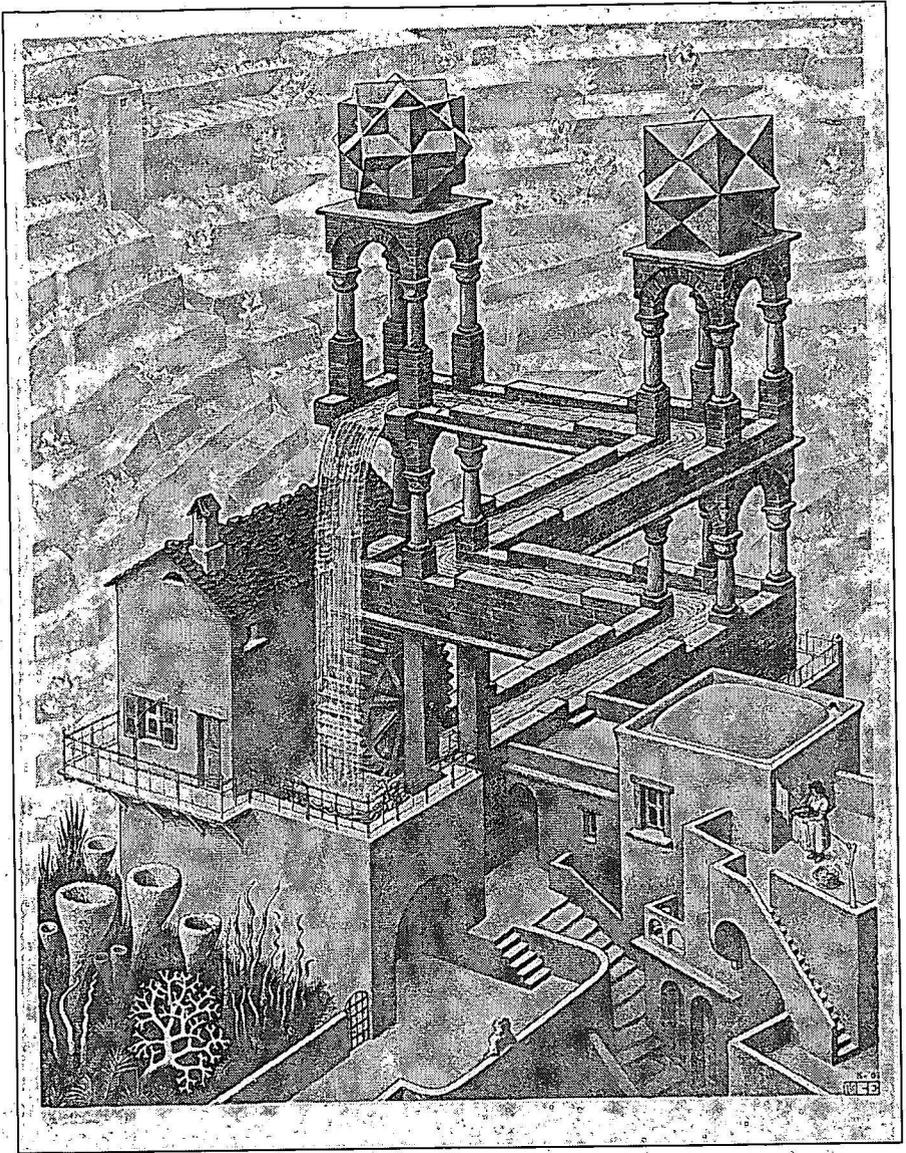
Jeremy Gray showed a copy of the drawing "*Waternal*" (waterfall) in the exhibition at the AGM and he asked if anyone knew why it included lichens. Although I am unable to give a full answer to this question it does raise some interesting points about this artist.

Maurits Cornelis Escher was born in Leeuwarden in the Netherlands in 1889 and even when young he showed his ability as an artist, especially in line drawing and lino cuts. He began studying architecture but soon decided that his interests were more in the field of fine art and, therefore, he left the architectural course. However, many of his drawings and prints have a very architectural feel to them. He also shows a great interest in mathematics and topology and included mobius strips (e.g. *Mobius strip II*, 1963) and regular solids in many of his prints. He said that these regular shapes "symbolised man's longing for harmony and order, but at the same time their perfection awes us with a sense of our own helplessness". I have felt the same way about lichens and taxonomy!

A number of his drawings were ahead of their time and based on the mandelbrot set and fractals and here no matter how far you go into or out of a picture the appearance is still the same (e.g. *Circle limit IV*, 1960). He is possibly best known for his metamorphosing drawings where fishes turn into bees, or birds into cubes (*Metamorphosis II*, 1940). This process is now frequently done electronically where it is called 'morphing' and appears in many television commercials.

This now brings us to natural history and lichens. I would think that it is probably the fractal appearance of many plants that helped gain Escher's interest in this area. He also had a particular interest in insects and produced some very accurate and artistically satisfying drawings and woodcuts (e.g. *Scarabs*, 1935). We can imagine his interest was roused by the regular shapes of lichens and in September 1942 he produced an indian ink drawing of a group of *Cladonia*. In his usual manner these are accurately represented and it is possible to put names to many of the species represented (*Cladonia chlorophaea*, *C. furcata*, *C. portentosa?* etc.).

In 1961, whilst working on his lithograph "*Waternal*", I assume that he needed a garden for the house in the strange and paradoxical world depicted. I would imagine that he then remembered the unusual shapes of the lichens in his drawing of nineteen years before. These, enlarged and simplified, provide just the correct slightly disturbing feeling of mystery to the garden depicted in this lithograph. The final result was produced as a



Waterfall by M C Escher

direct lithograph and this process has produced a mirror image of the lichens in his original ink sketch.

This is the only instance that I know of his depiction of lichens and there is now no further chance as his unique talents were lost to us on his death in 1972.

The illustration is reproduced by permission of Collection Haags Gemeentemuseum, Den Haag, Nederland.

Frank Dobson

INVITATION TO IRELAND 1993

Since my last report this time last year (*BLS Bulletin* 70:50-1), several events have made an impact on lichen recording in Ireland. During the small meetings that I led last summer many interesting species were found. If you belong to the exclusive échelons who participated, you will have enjoyed the convivial gathering. There was a most successful Autumn field meeting in Antrim and Down led by Brian Coppins, Sandy O'Dare and John Farren. After the serious lichenology of the day, philosophical debate, naturally enlivened by Sir Arthur, ensued.

It was a great pleasure to be present at the nomination and election of Mark Seaward to Honorary membership of the British Lichen Society in January. His energy, enthusiasm and dedication places Irish lichenology very much in his debt. In response to requests for an update of the Census Catalogue (Seaward, 1984), a draft for the revised Census Catalogue has been prepared. Work on the Red Data Book listing for Ireland by Nick Stewart is continuing apace. This site database is presenting the records from a quite different perspective and complements the existing summary information.

The birth of our new daughter, Flora, after a long gestation and a tiring labour is magnificent. Congratulations. While some of us will spend the summer in our lichen collections, others will be observing the world, with our daughter, with a refined inquisitive eye. Why not bring her on vacation to the wilds of Ireland, this summer, now that the Punt (Irish Pound) has been devalued.

I have planned four informal lichen weekends in Ireland this summer. The dates and locations are as follows: (a) 10-11 July, Carrick-on-Shannon, Co Leitrim, (b) 31 July-2 August, Stradbally, Co Laois, (c) 17-19 September, Carlingford, Co Louth and (d) 22-25 October, Dungarvan, Co Waterford. Irish Tourist Board B & B Accommodation is readily available in these areas. Rendezvous at 10.30 am (for tea) each Saturday and Sunday morning outside the main post office in the respective towns, for 11.00 am start. If there are any problems and for more details closer to the time of the meetings write to me or phone (0507) 31101 (Tel INT. (010) + 353 507 31101).

With acceleration of the mapping scheme to produce another atlas these meetings provide an ideal opportunity to contribute to lichen recording in Ireland. Beginners are especially welcome. I hope that these arrangements will encourage some more members to venture across to "Discover Ireland".

Howard Fox
Coursetown
Athy, Co Kildare
Republic of Ireland

LICHEN GROWTH IN AMMONIA-ENRICHED ENVIRONMENTS

I am a third year PhD student currently studying the ecological effects of sewage sludge applications on mature broad-leaved woodlands in mid-Wales. Monitoring of the tree lichen flora since sludge application during 1991 has revealed a significant increase in the growth of *Parmelia saxatilis* on *Betula pendula* in plots receiving sewage sludge. I would be very grateful for any help and information in locating relevant literature concerning lichen growth rates in ammonia enriched environments.

Sarah Lynn
University of Wales College of Cardiff
Llysdimam Field Centre
Newbridge-on-Wye
Llandrindod Wells, POWYS, LD1 6NB

FROM THE "ASSISTANT" TREASURER

New Membership Categories

Readers may be interested to know that we have currently 2 Associate members, 14 Senior Associate members, and 3 Family members. These figures include members new to the Society this year.

Sale of Publications at AGM

Sales of publications at this year's AGM were so light that, in future, only publications which have been ordered will be brought to the meeting.

Overpaid Subscriptions

Each year a number of subscriptions are received from members who have already paid for the current year. These subscriptions are repaid to UK members but carried forward to following years for overseas members in order to avoid the costs of currency conversion.

Membership Application Forms

Some members must still have a stock of old membership application forms which they issue to intending members. I still receive forms quoting a £7.00 subscription rate dating back to the '70s! I would be grateful if members would write to me for supplies of 1993 application forms which give the correct rates for full membership as well as details of the new categories of membership.

Jeremy Gray

SUTTON PARK - WARWICKSHIRE

A 28 page booklet entitled *A Natural History of Sutton Park, Part 2: Fungi, Lichens and Bryophytes*, edited by Peter Coxhead and Harold Fowkes, has recently been published. Sutton Park is an important area of heathland and bog to the north of Birmingham. Copies can be obtained from Dr Peter Coxhead, 71 Russell Bank Road, Sutton Coldfield, B74 4RQ, for £2.00 plus 40p postage (cheques payable to Sutton Coldfield Natural History Society).

John Walton

NEW, RARE AND INTERESTING BRITISH LICHEN RECORDS

(Contributions to this section are always welcome. Please submit entries to Frank Brightman, South London Botanical Institute, 323 Norwood Road, London SE24 99AQ, in the form of species; habitat; locality; vice county (VC); grid reference (GR); date; comments; recorder. Grid references may be abridged in the interests of conservation; they will be omitted when the record has been published elsewhere.)

(Brian Coppins informs me that already in excess of twenty species have been added to the British list since the publication of the new *Flora* - Frank Brightman.)

Arthonia anomorphila: on *Corylus* and *Quercus*, Birky Bank Wood, Crichton, VC 83, Midlothian, GR 36/3-6—, May 1992. New to SE Scotland.

B J Coppins and A M O'Dare

Arthonia astroidestra: on *Corylus* and *Ilex*, Brownsham, Devon Wildlife Trust Nature Reserve, VC 4, North Devon, GR 21/2-2—, July 1992.

B J Coppins and A M O'Dare

Arthonia cohabitans: on *Arthothelium reagens* on *Corylus*, in hazelwood near Sonachan Hotel, Ardnamurchan, VC 97, Westernness, GR 17/45-66-, June 1992. Previously known only from its type locality in Argyll.

B J Coppins

Arthonia thelotrematis: on *Thelotrema lepadinum* on *Corylus*, Deer Park Wood, Arlington, VC 4, North Devon, GR 21/62-39-, June 1992. New to England.

B J Coppins and A M O'Dare

Bactrospora dryina: on *Quercus* trunk, Borrodale (RSPB reserve), Loch Sunart, VC 97, Westernness, GR 17/59-61-, June 1992. First British record in this century.

B J Coppins and A M O'Dare

Blarneya hibernica: on *Quercus*, Brownsham, Devon Wildlife Trust Nature Reserve, VC 4, North Devon, GR 21/2-2—, July 1992. New to Devon.

B J Coppins and A M O'Dare

Buellia badia: on S-facing, red-brick tiles of cottage at edge of woodland, with *Parmelia mougeotii* and *P. verruculifera*, West Grimstead, VC 8, South Wiltshire, GR 41/201278, August 1992. Evidently not confined to East Anglia! (see *Bulletin* 70: 60-70).

B J Coppins and A M O'Dare

Caloplaca flavorubescens: on *Fraxinus* in pasture, Black Islands, Lough Ree, VC H24, Longford, GR 22/02-54-, 1988. Only determined recently.

H Fox, J Fox and K Kane

Carbonea assimilis (Körber) Haf. & Hertel: on \pm horizontal exposed siliceous rocks with *Micarea subnigrata* and *Rimularia furvella* (fertile), Borrodale, Loch Sunart, VC 97, Westerness, GR 17/60-60-, June 1992. New to Britain. Distinguished from *C. vorticosa* by its thicker thallus and hyaline hypothecium.

B J Coppins and J Poelt

Catillaria modesta: on NW-facing metamorphosed limestone crags, near Lough Salt, VC H35, West Donegal, GR C/12-26-, July 1991. New to Ireland.

B J Coppins and A M O'Dare

Cetrelia olivetorum: with apothecia, Hell's Glen, VC 98, Argyll, GR 26/19-05-, December 1992. The first find in British Isles of this species with apothecia; unfortunately no asci or spores were found.

B J Coppins, P M Earland-Bennett and A M O'Dare

Gyalideopsis scotica: on bryophytes in underhang of NW-facing metamorphosed limestone crags, near Lough Salt, VC H35, West Donegal, GR C/12-26-, July 1991. New to Ireland.

B J Coppins and A M O'Dare

Heterodermia obscurata: on an isolated *Salix* among reeds, St John's Wood, Lecarrow, VC H25, Roscommon, GR 12/99-56-, 1988. Only redetermined recently.

H Fox

Hypocenomyce sorophora: on old pines in native pinewood, Doire Darach, VC 98, Argyll, GR 27/2-4-, June 1992. New to Scotland. Determined T Tønsberg.

B J Coppins, P W James and J Poelt

Lecanora handelii: on vitreous slag at old lead mine, Ubley Warren, Mendip, VC 6, North Somerset, GR 31/5-5-, March 1992. New to SW England.

B J Coppins

Lecanora pruinosa: fertile and in good quantity on chest tombs and church buttresses at Cricklade, VC7, North Wiltshire, GR 41/09-93-, April 1993.

First British record this century.

K Palmer & I Blatchley

Lempholemma myriococcum agg.: on N-facing ledge of wall of Houghton House, Ampthill, VC 30, Bedfordshire, GR 52/0—3—, January 1993. The spore characters agree with *L. chalazenellum*.

B J Coppins and A M O'Dare

Leptogium byssinum: on fine soil of land-fill at road junction, near Fleydmire, NE of Forfar, VC 90, Angus, GR 37/488518, April 1992. New to British Isles. Previous British records of the species are misidentifications of *L. biatorinum*. Determined B J Coppins & P M Jørgensen.

R C Munro

Lichinodium sirosophoideum Nyl.: among mosses on N-facing side of basaltic dyke, Drummmond Wood, Crieff, VC 88, Mid Perth, GR 27/8—1—, August 1991. New to British Isles. Confirmed P M Jørgensen.

B J Coppins and A M O'Dare

Lopadium coralloideum (Nyl.) Lyngé: over mosses on vertical side of small rock-face, W-facing cliffs above Lochan na Lairige, Ben Lawers Range, alt. 600-700 m, VC 88, Mid Perth, GR 27/60-40-, June 1989. New to British Isles. Determined P M Jørgensen.

B J Coppins and A Fryday

Melaspilea lentiginosa: parasitic on *Phaeographis dendritica* on *Quercus*, Brownsham, Devon Wildlife Trust Nature Reserve, VC 4, North Devon, GR 21/2—2—, July 1992.

B J Coppins and A M O'Dare

Micarea intrusa: growing amongst *Rhizocarpon geographicum* on siliceous boulder, old mine, c. 7 km NE of Strontian, VC 97, Westernness, GR 17/86-66-, June 1992. New to W Scotland.

B J Coppins and J Poelt

Micarea submoestula: on low boulder below main summit, alt 400 m, Beinn Hiant, Ardnamurchan, VC 97, Westernness, GR 17/53-63, June 1992; on exposed basalt crags, alt. 250 m, Cuithir Trotternish, Isle of Skye, VC 104, North Ebudes, GR 18/46-59-, June 1991. Determined B J Coppins. New to Scotland.

A Fryday

Mniacea jungermanniae: bryophilous on the hepatic *Cephalozia bicuspidata* on ditch bank, Milkham Inclosure, New Forest. VC 11, South Hants, GR 41/200093, 1993. New to southern England. Confirmed B J Coppins.

H W Matcham

Pannaria conoplea: overgrowing mosses, frequent on *Corylus* at winter flood-water level, west shore of Lough Ree, St John's Wood, Lecarrow, VC H25, Roscommon, GR 12/99-56-, 1992. This species is rare in the Irish midlands.

H Fox

Pannaria mediterranea: fertile (one apothecium only) on *Fraxinus*, N edge of Carie Wood, N side of Loch Tay, VC 88, Mid Perthshire, 27/6—3—, February 1993. First find in British Isles of this species in fruit.

B J Coppins and A M O'Dare

Parmelia soledians: fertile, on exposed rocks above sea-cliff, near Blackstone Point, Yealm, VC 3, South Devon, GR 20/5—4—, July 1992. Appears to be first collection with mature spores, which are 8 per ascus, ellipsoid, c. 17-18 x 7.8 μm , with thickish wall c. 1 μm thick. These spore characters support the position of this species in the genus *Flavoparmelia* Hale.

B J Coppins and A M O'Dare

Parmelia submontana: on tops of siliceous gravestones, Sweetheart Abbey churchyard, New Abbey, VC 73, Kirkcudbright, GR 25/964652, 1992. (It was presumably there, but overlooked by BJC in a visit to this graveyard in 1982!).

B J Coppins and A M O'Dare

Peltigera leucophlebia: a population in old pasture, by lime kiln, Ballyprior, Stradbally, VC H14, Laois, GR 21/58-92-, 1990. Altitude 230 m. The only recent record from S E Ireland.

P Grant and H Fox

Phaeophyscia endophoenicea: on base-enriched bark of *Quercus* in good light, Long Beech Inclosure New Forest, VC 11, South Hants, GR 41/25-12-, 1993. New to Southern England.

N A Sanderson

Polyblastia efflorescens: in crevices of NW-facing metamorphosed limestone crags, near Lough Salt, VC H35, West Donegal, GR C/12-26-, July 1991. New to Ireland.

B J Coppins and A M O'Dare

Pterygiopsis lacustris: abundant on boulders in River Wye, Pontyr' Marteg, NW of Rhayader, VC 43, Radnor, GR 22/95-71-, July 1981. New to Wales.

B J Coppins and R G Woods

Ramonia nigra: on base-enriched bark of *Quercus*, New Forest, VC 11, South Hants, Eyeworth Wood, GR 41/22-14-, and Great Wood, GR 41/25-15-, 1992. Previous records from the New Forest were only on wood inside hollow *Fagus* and *Fraxinus*. In the case of *Quercus*, the trees were less shaded than in typical habitats of *R. chrysophaea*.

N A Sanderson

Rhizocarpon ochrolechia (Poelt & Nimis) Haf.: parasitic on *Ochrolechia parella*, Point of Ardnamurchan, VC 97, Westernness, GR 17/41-67-, June 1992. New to British Isles.

B J Coppins and J Poelt

Rimularia sphacelata (Th. Fr) Hertel & Rambold: on dead bryophytes over acid rocks at 900 m alt., on the north ridge of Aonach Mor, Fort William, VC 97, Westernness, GR 27/18-74-, August 1990. Determined B J Coppins. New to British Isles.

A Fryday

Schismatomma graphidioides: on pollarded *Fraxinus* with *Wadeana dendrographa*, Culverhole Hill, Branscombe, VC 3, South Devon, GR 30/19-88-, July 1992.

B J Coppins and A M O'Dare

Sclerophyton circumscriptum: in underhang in coastal sandstone cliff, Cove, VC 81, Berwickshire, GR 36/7—7—, August 1992. First find from the east coast of Britain.

B J Coppins and A M O'Dare

Skyttea tephromelarum Kalb & Haf.: parasitic on *Tephromela atra* on coastal dyke, Carraig Fhada, S of Port Askaig, Islay, VC 102, South Ebeudes, GR 16/429658, July 1992. New to British Isles: previously reported from Kenya and Madeira.

B J Coppins and A M O'Dare

Skytella mulleri: on *Peltigera praetextata*, Resipole Ravine, Loch Sunart, VC 97, Westernness, GR 17/7—6—, June 1992. New to Scotland.

B J Coppins and A M O'Dare

Staurothele geoica: on the ground over moribund bryophytes in mine sites,

N of Belsgrove Lodge (GR 17/83-65-) and in old mine, c. 7 km NE of Strontian, (GR 17/86-66), both in VC 97, Westernness.

B J Coppins and A Fryday

Straurothele questphalica: on calcite stones in old mine, c. 7 km NE of Strontian, VC 97, Westernness, GR 17/86-66-, June 1992.

B J Coppins and A Fryday

Sticta limbata: on vulcanized rubber of large, abandoned "Goodyear" tyre in woodland, with *Lecanora jamesii*, *Parmelia glabratula* and *P. saxatilis*, 4.5 km W of Strontian, by Loch Sunart, VC 97, Westernness, June 1992, GR 17/76-60-. On another tyre nearby grew *Micarea peliocarpa* and *Mycoblastus sterilis*.

B J Coppins and A M O'Dare

Thelomma ocellatum: on fence post, near Crichton Castle, VC 83, Midlothian, GR 36/3—6—, May 1992. New to SE Scotland.

B J Coppins and A M O'Dare

Verrucaria latericola: locally frequent on *Caloplaca flavescens*, on vertical limestone, at several sites in Counties Laois, H14, Westmeath, H23, Leitrim, H29, and Fermanagh, H33, in Ireland. GRs 21/53-98-, 21/43-84-, 22/45-76-, 13/90-50-, 23/27-30-, and 23/08-52-; altitude 80 - 350 m, 1990-1993. Also in Wales on *Caloplaca* at Oxwich Bay, West Glamorgan, VC 41, GR 21/52-88-, altitude 30 m, 1990.

H Fox

LITERATURE PERTAINING TO BRITISH LICHENS - 13

Lichenologist 24 (4) was published on 23 October 1992, and 25 (1) on 9 February 1993.

Taxa prefixed by * are additions to the flora of Britain and Ireland. Comments in square brackets are mine.

ARVIDSSON, L & MARTINSSON, P-O 1993. Notes on the variation of *Caloplaca obscurella*. *Graphis scripta* 5: 65-68. Detailed account of this species; *C. sarcopisoides* is confirmed as a synonym.

BENFIELD, B 1991 & 1992. Report on Botany: Lichens. *Rep. Trans. Devon Ass. Advmt Sci.* 123: 256 (1991); 124: 248 (1992). Updates of the Devon checklist published in vol. 122 of the same journal.

HAWKSWORTH, D L & MCMANUS, P M 1992. Lichens: changes in the lichen flora on trees in Epping Forest through periods of increasing and ameliorating sulphur dioxide pollution. In M W HANSON (ed) *Epping Forest: Through the eye of the naturalist* [Essex Naturalist no. 11], pp. 92-101. Since the late 18th century, 145 species have been recorded from trees in the forest. About half of the 41 species recorded in 1989-91 were not found in 1968-70, many of the "new" species are conspicuous macrolichens.

KALB, K & HAFELLNER, J 1992. Bemerkenswerte Flechten und lichenicole Pilze von der Insel Madeira. *Herzogia* 9: 45-102. The genus *Macentina* is said to be a synonym of *Leucocarpia*, and the following combinations are proposed: *L. dictyospora* (Orange) Haf. & Kalb, *L. stigonemoides* (Orange) R Sant. [In my opinion, more detailed evidence is required before these two genera are united.]

LAUNDON, JR 1992. *Pertusaria aspergilla*, the correct name for *P. dealbata* auct. (lichenized Ascomycotina: Pertusariales). *Pertusaria aspergilla* (Ach.) Laundon is the correct name for *P. dealbata* auct., and *P. dealbescens* auct. *Taxon* 41: 744-745. *P. dealbescens* Erichsen (1936) is a superfluous name for *P. dealbata* (Ach.) Crombie (1870), the type of which is *Pertusaria corallina*.

O'CONNELL, M, FIVES, J M & CEIDIGH, P O 1992. Ecological studies of littoral fauna and flora on Inishmore, Aran Islands, Co. Galway. *Proc. R. Irish Acad.* 92B (7): 91-107. Includes transects with littoral lichens.

RAMBOLD, G & TRIEBEL, D 1992. *The Inter-lecanoralean Association's*. [Bibliotheca Lichenologica 48]. Cramer, Berlin. An assessment of lichenicolous fungi where both parasite and host are referable to the Lecanorales. *Lecidea inquinans*, a parasite of *Baeomyces roseus*, is transferred as *Micareia inquinans* (Tul.) Coppins.

SANTESSON, R 1993. *Stigmidium degelii*, a new lichenicolous fungus. *Graphis scripta* 5: 3-4. **S. degelii* R Sant., a frequent parasite on *Degelia plumbea*, is described from Scandinavia and Scotland.

SEAWARD, MRD 1992. Progress in the study of the Yorkshire lichen flora. *Naturalist* 117: 138. Over the past 300 years, 833 taxa have been recorded from the county, 607 of which have been seen recently. A map is provided showing the number of species recorded per 10 km grid square since 1980.

SEAWARD, MRD 1992. Bryology and lichenology. *Trans. Lincs. Nat. Un.* 23: 23-24. Lists additional records of 15 species for Lincolnshire.

SEAWARD, M R D 1992. Large scale air pollution monitoring using lichens. *GeoJournal* 28: 403-411. The versatility of lichens in highlighting the rise and fall in levels of differing pollution regimes is demonstrated using distribution maps for the British Isles of *Lecanora conizaeoides*, *Parmeliopsis ambigua* (in 1980 and 1991), *Ramalina farinacea*, *Stereocaulon pileatum*, *Xanthoria polycarpa* (in 1980 and 1991), and *Usnea* spp.

VEZDA, A 1993. *Lichenes Rariores Exsiccati, Fasc. 6*: 1-4. **Catillaria alba* Coppins & Vezda is newly described, with British records from Angus and Midlothian. [It has white apothecia and stalked pycnidia and grows on bark and lignum of ancient trees.]

Brian Coppins

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