

BRITISH LICHEN SOCIETY BULLETIN

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President: D. C. Smith, M.A., D.Phil.

Churchyards face uncertain future

Last year the Church Information Office published a booklet which indicates that the Church of England now recognises the scientific importance of churchyards. The booklet is entitled Wildlife Conservation in the Care of Churches and Churchyards, and its author is G. M. A. Barker; it was commissioned by the Board of Social Responsibility of the General Synod of the Church of England. The Board's chairman, the Lord Bishop of Leicester, writes in the foreword that the preservation of lichens may raise many eyebrows, but that such things might easily be otherwise overlooked. It points out that those who manage churchyards and church buildings can make a significant contribution to the conservation of wildlife, because churchyards are often oases in inhospitable urban and agricultural surroundings. This does not mean that the churchyard should be an overgrown jungle, but that adequate consideration should be given to wildlife in course of management. The booklet deals with the maintenance of relict grassland, trees, hedges, shrubs, walls and gravestones within the churchyard, and the importance of the church building for bats and owls. Full conservation measures can cause some difficulties

Village churchyard at Westwell near Burford, Oxfordshire. This churchyard, like many in the Cotswolds, has a rich variety of limestone headstones, chest-tombs and bale-tombs - the last having semi-cylindrical tops, a type confined to Gloucestershire and Oxfordshire - dating from the 17th and 18th century, which provide important habitats for calcicolous lichens. Photograph: J. R. Laundon 1973.



however, because bat droppings "give worshippers a great deal of annoyance or distress" and the grazing of graves by sheep, goats, geese or ponies might be "obnoxious to relatives". The booklet ends with the plea that churchyards should be modelled on rural parkland rather than well-kept lawns and gardens.

The booklet stresses the importance of churchyards as habitats for lichens. "A church and churchyard provides a considerable area of rock face, ... in highly agricultural counties with little or no natural rock exposures old churchyards comprise virtually the only places where a flora of rock-dwelling lichens of any importance occurs. Further, in areas where there is a moderate degree of air pollution, churchyards are frequently the only places where any significant lichen flora at all survives since trees in such places carry few lichens ... Gravestones are particularly interesting to lichenologists, since the colonies on the stones can be relatively accurately dated and their rates of growth measured. This has some bearing on recording the effects of air pollution." The booklet might be criticised for not directly denouncing the clearance of memorials in churchyards. It is obtainable from Church House Bookshop, Great Smith Street, London SW1, for 25 p plus 5 p postage.

Clearance of memorials is chiefly a phenomenon of urban areas. In many British towns the old churchyards have already been converted to public gardens, and the memorials either broken up or placed in an obscenely monotonous row around the churchyard wall. It is deplorable that some of this destruction should have been carried out this year under "Operation Eyesore" with a Government grant covering 75 per cent. of the costs. It is to be urged that the old uncleared churchyards which survive will be conserved, for they are most important lichen habitats which remain in towns. By contrast cemeteries, being of a more recent date, are of comparatively little lichenological importance. Even the romantic early cemeteries, such as St. James's, Liverpool (opened 1829), and Kensal Green (1833) and Highgate (1838) in London, have a poor lichen flora. The Society would be grateful to be notified of intended churchyard clearances, so that the threatened memorials can be visited and reported upon. The Society's official to inform is the Conservation Officer, Mr F. N. Haynes, Department of Biological Sciences, Portsmouth Polytechnic, Hay Street, Portsmouth, Hampshire. PO1 3QL.

It is fortunate that village churchyards rarely fall victim to the promoters of tidyness and formality, and they therefore usually retain their old memorials bearing a rich lichen flora. However, this happy state of affairs may not last indefinitely. The decline in religious worship appears certain to continue, whilst many a rural church is already too large and too expensive for the village to maintain adequately, and voluntary labour is relied upon for the upkeep of the churchyard. Thus not infrequently both church and churchyard linger on in a decayed and ill-kept state. In some places the church has eventually become disused, and vandalism has quickly followed, rendering the building unsafe. The church is therefore closed and access prohibited, as at Elston Chapel (Nottinghamshire), Haceby (Lincolnshire), Hartwell (Buckinghamshire) and Newton (Northamptonshire). Demolition then becomes a possibility, even where the building concerned is quite historic, as at 12th century Faxton (Northamptonshire); here both church and churchyard were swept away in 1959, and even the foundations were dug up before the site was grassed over. Fortunately the most outstanding redundant churches (e.g. Parracombe, Devonshire) are now being preserved by the Redundant Churches Fund, set up in 1968. The decline in Anglican attendances means that an ever increasing number of churches, together with the lichen flora of their churchyards, face an uncertain future.

Lichens give churchyard memorials, which are rarely earlier than the mid 17th century, an attractive mellowed or weathered appearance so that they blend with their surroundings. By contrast, headstones which are poorly colonised by lichens,

such as those of Swithland slate, which dominate the churchyards in west Leicestershire, south Nottinghamshire and parts of west Lincolnshire, present a harsh appearance. On the other hand lichens do obscure the lettering and design, especially on limestone. The aesthetic effects of lichen colonisation on memorials of different types of stone is a wholly neglected field of study, yet it is an important aspect of the deterioration of works of local art. The effects of shading, surface textures, nitrogenous downwashes from bird perches, water retention, and effects of heavy metals (as downwash from lead lettering) on lichens, are all subjects which can be observed in churchyards and which await serious study. Comparative work on the lichen flora of churchyards, county by county, is required, to provide information on the whereabouts of the most important churchyards from the viewpoint of their lichen flora.

Subscriptions increased

The Special General Meeting of the Society held on 29 September 1973 approved the Council's proposals regarding subscription rates and junior membership. Members have already received in the notice convening the meeting details of the reasons for the changes. Academic Press have taken over the publication of The Lichenologist and will sell the journal for £4 annually to members of the Society. It is estimated that £1 per member is required to cover the Society's other activities and expenses (Bulletin, meetings, library, reading circle, conservation, referees, Study Group, herbarium, maps scheme, etc.). Thus the ordinary subscription becomes £5 from 1 January 1974. Junior subscriptions are abolished in their present form.

As the subscription increase may be particularly hard on younger members, persons under 21, or under 25 if receiving full-time education, may either become ordinary members at £5 per annum, or junior associate members for £1 per annum. If they opt for the latter they will not receive The Lichenologist but will have all other facilities, including receipt of the Bulletin. A copy of the new Rules, which incorporates this change, is enclosed. The Council is to keep under review the question of whether associate membership should be open to all, regardless of age. It should be noted that non-members may receive the Bulletin at 25 p per copy post free. Family subscriptions remain at £0.25, they having been constant since the formation of the Society in 1958. The new subscriptions are due on 1 January 1974 and should be sent to the Treasurer, Mr S. A. Manning, 10 Alliance Court, Hills Road, Cambridge, CB1 4XE.

Mapping and conservation meeting, 4 January 1974

A meeting of members interested in mapping and/or conservation to discuss problems and policy etc. will be held in the afternoon on Friday 4 January 1974 at 14.00 in Mr Brightman's room, British Museum (Natural History), Cromwell Road, London SW7 5BD. Members attending the meeting are kindly requested to return the form at the end of this Bulletin to Dr Seaward, together with suggested items for discussion. Non-members interested in conservation or mapping will also be welcome at the meeting.

Nominations for Officers and Council Members

Nominations for Officers for 1974 and Council Members for 1974 - 75 should be sent to the Secretary before 22 December 1973 on the enclosed form. No person may be nominated without their consent. Dr H. J. M. Bowen, Dr O. L. Gilbert and Mrs A. G. Side retire from the Council and are not eligible for re-election.

Annual General, Lecture and Exhibition Meeting, 5 January 1974

The Annual General Meeting will be held at 10.00 on Saturday 5 January 1974 in the Department of Botany, Imperial College, Beit Hall, Prince Consort Road (north side), South Kensington, London SW7, by kind invitation of Professor A.J. Rutter, head of the Department. The nearest Underground station is South Kensington, and Exhibition Road connects this station with Prince Consort Road. The Department is immediately to the south of the Albert Hall. It is hoped that all members will endeavour to attend.

Agenda

1. Apologies for absence.
2. Minutes of the last Annual General Meeting and Special General Meeting.
3. Matters arising.
4. Reports of the officers.
5. Place and dates of autumn meeting 1974.
6. Place and dates of annual general, spring and summer meetings, 1975.
7. Election of honorary member: Dr I. M. Lamb (Cambridge, Mass.).
8. Election of auditor.
9. Election of three members of Council.
10. Election of officers.
11. Election of President and Vice-president.
12. Any other business.

J. R. LAUNDON
Honorary Secretary

Following the Annual General Meeting there will be the exhibition meeting from 11.00 until 12.00. Members are asked to make a special effort to contribute exhibits of lichenological interest. Demonstrations should include a title and name of exhibitor.

The lecture meetings will continue in the afternoon in the same building. The lectures will deal with lichenological investigations on islands, including the showing of colour transparencies, and they should therefore be of wide appeal. The full programme is as follows:

- 10.00 Annual General Meeting.
- 11.00 Exhibition Meeting.
- 12.00 Lunch. Members are kindly requested to make their own arrangements. The restaurants Daquise (Turloe Street), Barino (Harrington Road) and The Hayloft (Harrington Road), all near South Kensington Station, are recommended.
- 14.00 Lecture; O. L. GILBERT: The lichens of North Rona - our remotest island.
- 14.30 Lecture; D. J. GALLOWAY: The Three Kings Islands of northern New Zealand.
- 15.00 Tea interval.
- 15.30 Lecture; P. D. CRITTENDEN: Lichen studies in Iceland.
- 16.00 Lecture; P. W. JAMES: The lichen floras of the islands of western Britain.

Spring field meeting at Bristol, 1974

The 1974 spring field meeting will be held from 1 - 8 April 1974, immediately preceding the symposium to be held jointly with the Systematics Association from 8 - 10 April, details of which are given below. Both the field meeting and the symposium will be based at the University of Bristol. During the meeting the lichen flora of sites in Gloucestershire, Herefordshire, Somerset, Wiltshire and Worcestershire will be examined. Herefordshire and Gloucestershire are relatively well-studied counties with some 400 and 500 species recorded respectively, although some early records are possibly incorrect. In Herefordshire old parklands still support a rich and varied lichen flora; several sites are known from which over 100 species have been recorded since 1960, including Lecidea cinnabarina, Lobaria amplissima, L. pulmonaria, Pachyphiale cornea, Thelopsis rubella and Thelotrema

lepadinum. From Gloucestershire, also, there are several sites known where 100 species have been found in the last ten years. Among interesting plants recorded recently are Haematomma elatinum, Lecanora piniperda, Leptogium plicatile, Pachyphiale cornea, Parmelia elegantula, Solorina saccata and Xylographa vitiligo. The two counties are especially interesting to the student of lichen distribution as they are boundary areas where plants commonly thought of as eastern and western, or highland and lowland, are found in close proximity. This results in an extremely varied lichen flora despite the proximity of extensive industrial areas around Bristol and Birmingham. The Malvern Hills, on the borders of Gloucestershire, Herefordshire and Worcestershire, are lichenologically a neglected area of ancient acid rocks that could well repay attention. In south Gloucestershire several border sites indicate that adjoining areas of Somerset and Wiltshire, where little recent work has been undertaken, will be of considerable interest. This meeting therefore combines visits to districts already known for their rich and interesting lichen flora with studies in lesser known areas possessing a high potential.

The meeting will be led by Mr R. H. Bailey and Dr D. H. Brown. Enquiries about accommodation should be addressed to the local secretary, Dr D. H. Brown, Department of Botany, The University, Woodland Road, Bristol, BS8 1UG. Accommodation can be arranged in the University Halls of Residence through Dr. Brown - who will also be able to provide a list of hotels and guest houses for those wishing to make their own arrangements.

Lichen symposium at Bristol 1974

On 8 - 10 April 1974 inclusive, a symposium, to be held in conjunction with the Systematics Association, entitled "Progress and Problems in Lichenology", will be held at the University of Bristol. A wide variety of topics will be considered including anatomy, biogeography, ecology, morphology, nutrition, physiology, the symbiotic state and taxonomy (including algal taxonomy). Papers will be presented by R. A. Armstrong, R. H. Bailey, D. H. Brown, B. J. Coppins, J. F. Farrar, B. W. Ferry, A. Fletcher, M. E. Hale, D. L. Hawksworth, A. Hensson, D. J. Hill, P. W. James, O. L. Lange, J. W. Millbank, R. Nourish, R. W. A. Oliver, E. Peveling, F. Rose, M. R. D. Seaward, D. C. Smith and E. Tschermak-Woess. Several lectures will be accompanied by exhibits, and space can be made available for exhibits by those attending the Symposium.

Accommodation will be in the University Halls of Residence, although hotel accommodation is available in the vicinity. The cost of full board and residence is about £5 per day. There is a registration fee of £4.00 for non-members. Members of the British Lichen Society may register for £2.00, and students for £1.00. Full details of the programme and registration forms should be obtained from the local organiser, Dr D. H. Brown, Department of Botany, The University, Woodland Road, Bristol, BS8 1UG. The registration forms, accompanied by a remittance, should be returned to Dr Brown not later than 29 March 1974. The symposium will be preceded by the Society's spring field meeting, details of which appear above.

Summer field meeting in Scotland, 1974

The summer field meeting will be held in Scotland under the leadership of Mr P. W. James, with Dr Pauline B. Topham as local secretary. The first part will be centred on Forres, Morayshire, from Thursday evening 1 August 1974 until Thursday morning 8 August. Early booking is essential. The Royal Hotel, Forres, will be the headquarters and members should meet outside here at 9.30 on Friday 2 August. Members must book their own accommodation and return the attached form to Dr Topham; packed lunches will be required each day. The meeting has been arranged so that members travelling by train should be able to take advantage of economy return tickets (provided these are still available

next summer) which are for mid-week travel (Tuesday, Wednesday, Thursday) but must be booked at least three weeks in advance. The present economy return fare to Forres is £10.50 from London, compared with the second class ordinary return of £20.90. At present trains leave King's Cross at 8.00 and 10.00 arriving at Forres at 19.48 and 22.46 respectively, following changes at Edinburgh and Aberdeen. Accommodation at Forres is given below; prices for 1974 were not available at the time of going to press - they will be higher than those for 1973, and members should be sure to check when they book.

Carlton Hotel (telephone: Forres 2531). 14 double, 1 single. £21.00 per week inclusive, £3.00 bed, breakfast & evening meal, £2.00 bed & breakfast (1973 prices).

Cluny Hill Hotel (telephone: 2288). 53 double, 15 single. £30.00 per week inclusive, £4.80 bed, breakfast & evening meal, £3.50 bed & breakfast (1973 prices).

Royal Hotel (headquarters) (telephone 2617). 9 double, 9 single. £21.00 per week inclusive, £2.75 bed & breakfast; plus 10 per cent. VAT (1973 prices).

Mrs. J. Smart, Parkmount Guest House, St. Leonards Road (telephone: 2528). 6 double, 2 single. £1.50 bed & breakfast (1973 price).

From Thursday evening 8 August to Tuesday morning 13 August, Banff will be the centre. The Fife Arms Hotel will be the headquarters and members should meet here at 9.30 on Friday 9 August. There is an approximately hourly bus service between Banff and Aberdeen, the journey taking two hours. Members attending both the Forres and Banff parts can obtain an economy return ticket to Aberdeen for £9.70 (1973 price) and travel on to Forres with a single ticket. Members requiring further information on travel or accommodation should contact Dr Topham, 27 Oxford Street, Dundee (telephone: Dundee 68543). Accommodation at Banff is as follows:

Crown Hotel (telephone: Banff 2455). 11 double, 4 single. £2.00 bed & breakfast (1972 price).

Fife Arms Hotel (headquarters) (telephone: 2427). 20 double, 5 single. £3.30 bed & breakfast; plus 10 per cent. VAT (1973 price).

Seafield Hotel (telephone: 2486). 8 double, 2 single. £2.00 bed & breakfast (1973 price).

Mrs E. Watson, 45 Low Street (telephone: 2545). 8 double, 2 single. £1.50 bed & breakfast (1973 price).

Lichen courses 1974

DEVONSHIRE. Slapton Ley Field Centre, Slapton, Kingsbridge, TQ7 2QP. 24 - 31 July 1974. Lichens. D. L. Hawksworth.

LONDON. British Museum (Natural History), Cromwell Road, London SW7 5BD. Ten lectures on Wednesdays at 18.30 commencing 16 January 1974. P. W. James.

The lectures will be illustrated with material from the museum collections.

PEMBROKESHIRE. Orierton Field Centre, Pembroke. 24 - 31 July 1974. Lichens. P. W. James.

PERTHSHIRE. Kindrogen Field Centre, Enochdhu, Blairgowrie. 7 - 14 August 1974. Ecology of lichens. F. H. Brightman.

SURREY. Haslemere Educational Museum, Haslemere. 10 - 12 May 1974. Lichens. R. H. Bailey and P. W. James.

For the Devonshire, Pembrokeshire and Perthshire courses the field centres will supply further details, and information regarding bursaries and grants available for those who attend. Forms of application for the London and Surrey courses can be obtained from the Deputy Director (Extension) (att. R. H. Bailey), Department of Extra-Mural Studies, University of London, 7 Ridgmount Street, London WC1E 7AD.

Revision of checklist

Mr P. W. James, Department of Botany, British Museum (Natural History), Cromwell Road, London SW7 5BD, is in the process of revising the checklist of British lichens, (published in Lichenologist 3: 95-153 (1965)) and would welcome corrections and additions by 30 April 1974.

Grants for work on the conservation of endangered species

Last winter a working group on the conservation of endangered species was established, following the offer of a substantial sum of money to the World Wildlife Fund by Petfoods Ltd. The British Lichen Society applied for £500 from the offer in February 1973 for "an analysis of the distribution of threatened lichen species, communities and habitats, study of the rates of turnover of endangered colonies, competition effects and transplant experiments." The Society was informed in May that their application was successful. As the working group indicated that this money should be allocated for immediate use, members of the Lichen Site Committee were asked for the names of persons who would be willing to undertake the work involved. As there was insufficient time to include details of the grant in a special Bulletin, the Council decided that half the money should be held over so that it was available to the whole membership.

All members who wish to make an application for money from the grant should send a written statement of their financial requirements and details of their research plans by 31 December 1973 to the Secretary, Mr J. R. Laundon, Department of Botany, British Museum (Natural History), Cromwell Road, London SW7 5BD. This should enable the Council to make awards early in 1974. The grant is for expenses in research in relation to endangered lichen species, in accordance with the above project description; it is not for retrospective use.

Death of Mr J. H. G. Peterken

Mr Joseph Henry Garfield Peterken died on 13 September 1973 at the age of eighty. Mr Peterken was born on 24 March 1893 at Leyton (now in London), and became a chartered accountant by profession. He was particularly interested in bryophytes. When the British Lichen Society was formed in 1958 he readily agreed to become Treasurer, despite already holding this same onerous office for the British Bryological Society. He remained an excellent Treasurer until his resignation at the end of 1965. From 1966 - 1967 he was President of the Society, during which time of course he acted as Chairman at the Society's meetings, at which he was a pastmaster. Until this time he regularly attended the Society's field meetings, but then he had difficulty in getting about, and was therefore unfortunately unable to be so active. Even so, he took on the job of the Society's auditor in 1970, a position he held until his death. The Society will greatly miss his administrative abilities. He has kindly bequeathed his lichen herbarium and related transparencies to the Society.

Dr Duncan presented with Bloomer award

The H. H. Bloomer medal and award was presented in May this year by the Linnean Society of London to Dr Ursula Katharine Duncan. This award is presented each year to an amateur naturalist who has made an important contribution to biological knowledge. The President remarked that Dr Duncan was born in London but moved to her present home in Arbroath whilst still a child. She now ran a farm "devoted to the production of prime scotch beef." Her interest in vascular plants dated from 1919 and she has "made a lasting and important contribution to our knowledge of the flora of Scotland, besides maintaining an important private herbarium." Mention was made of her books on lichens, the most recent being "generally acclaimed as the definitive modern flora for this group in the British Isles." The President also mentioned her important work on bryophytes, and ended by saying that "no amateur could have surpassed you in the furtherance of botanical research or in the value of contributions made to the British flora."

Record gathering

About sixty lichenologists attended the Austrian field meeting of the International Association for Lichenology in September 1973. Many of Europe's leading lichenologists were present. The Association attracted the largest number of lichenological participants at any field meeting in recorded history.

A. Plymouth power-station approved

A Public Inquiry into the Central Electricity Generating Board's proposal to build an oil-fired power-station with a 675 ft high chimney emitting 420 tons of sulphur dioxide per day at Inswork Point, Millbrook, near Plymouth, was held in 1971. At this Inquiry, the longest ever held into an application to build a power-station, Dr D. L. Hawksworth and Mr P. W. James gave evidence and were cross-examined for three days on the effects that the sulphur dioxide emissions would be expected to have on the lichen vegetation of Dartmoor and south Devonshire. Their evidence was given on behalf of the Devonshire County Council (see Bulletins 28 and 29).

The reports of the Inspectors and of the Assessor on Pollution were given to the Department of Trade and Industry and to the Department of the Environment in May 1972, and on 24 August 1973 the Secretary of State for Trade and Industry, Mr Peter Walker, announced that the Inspector's findings that "technical and economic advantages outweigh the many objections against loss of amenity and danger of pollution" had been accepted, and that planning consent for the power-station had been authorised.

The pollution Assessor's review of the evidence given by Mr James and Dr Hawksworth occupies 11 pages of his report so can be summarised only briefly here. He accepts that "their evidence cannot lightly be dismissed as irrelevant to the sulphur dioxide pollution issues before the Inquiry" and "the theme on the effect of sulphur dioxide on lichens developed by Mr James and Dr Hawksworth is rather more than a plausible hypothesis". On the basis of the calculations produced by the CEGB on the increases in sulphur dioxide levels to be expected from the power-station, however, he concluded that "it is unlikely that the effect on the lichens will be such as to destroy the species that Mr James, Dr Hawksworth and the Devon County Council wish to preserve" and that "The fears of the Devon County Council that the lichen population of South and Mid Devon would suffer irreparable devastation if a power station was built at Inswork Point are not justified."

Two points which are a matter of some concern to scientists arising from the Inquiry and the reports are (1) the way in which the data of the CEGB were apparently accepted without reservation and (2) the inability of the Inspectors and Assessor on Pollution to appreciate the point that lichens form part of an ecosystem.

The CEGB stated that plant to remove sulphur dioxide from the flue gases would cost £11 million to install & £500,000 a year to run; a small amount relative to the £120 million cost of the station itself. It is difficult to put a price on the value of biological communities but apparently they are not worth expenditure of this order. In 1907 A. R. Horwood (in J. Bot., Lond. 45: 336) stated that "the systematic botanist has to face the gradual extinction of all lichens ... in those regions where at one time they flourished best." Although this is an overstatement, the Government's approval of this power-station, which the CEGB hope will be operating in the winter of 1979 - 80, may be regarded as the thin edge of the wedge as far as the present lichen vegetation of Devonshire is concerned.

There is still a great deal of local opposition to the power-station, but now there has been a public inquiry, this is not likely to lead to any change in the Government's decision.

It is unfortunate that one of the richest areas for lichens left in the British Isles is to become subjected to increasing sulphur dioxide pollution, but at least the CEGB and the Government cannot say that lichenologists did not

present their case, and that they were unaware of any effect the power-station might have on lichens in the area. "Thus it behoves the lichenologist particularly ... to hasten to complete the systematic study of the local floras still lingering on in the less populated districts of the British Islands; for in years to come this will be impossible." (Horwood, A. R., in J. Bot., Lond. 45: 337 (1907).)

D. L. HAWKSWORTH

B. Pollution threats to Highland Britain

Highland Britain has been fortunate in the past in being subject to comparatively low levels of background air pollution, with the result that the lichen flora has been little affected by sulphur dioxide. Most industry and population is situated in Lowland Britain, on the eastern side of the country, with the result that the lichen flora has been considerably affected by pollution in this lowland zone, and also in the neighbouring countries of Belgium, the Netherlands, northern Germany and Denmark. Now events suggest that industrialisation is slowly but surely coming to Highland Britain, chiefly through developments connected with the oil industry, and the virgin lichen flora of many areas may be destroyed. The consent for the construction of the power-station at Plymouth must ultimately lead to the depletion of the rich epiphytic flora from the Dartmoor oak-woods. In south-west Ireland preliminary permission has been granted for the construction of an oil refinery on Whiddy Island in Bantry Bay with stack heights of some 150 m (500 ft), and there are proposals for further refineries at Tarbert in County Kerry and on the Lower Shannon in County Clare, as well as for a smelter at Little Island, County Cork. In north-west Scotland the proposal for oil platform construction developments (for concrete well-heads 500 ft high) at Drumbuie near the Kyle of Lochalsh (Ross and Cromarty), is the first case of proposed industrial development on the west coast north of the Clyde; a similar development is planned for Dunnet Bay in Caithness. The Milford Argosy Corporation of Oklahoma City have applied to build a large oil refinery on the Shetland Islands. Further proposals for developments in northern Scotland are anticipated, following the discovery of oil from beneath the North Sea.

C. Zinc refinery for Hartlepool

Cominco, the Canadian-based metals and mining group, has plans for the construction of a major zinc refinery in the Hartlepool area of County Durham. The ore is to be supplied from Greenland and it is hoped that production will begin in 1976. The plant is to use the electrolytic process in which sulphur dioxide is converted to sulphuric acid; in this way it is hoped to escape the criticisms over pollution emissions which have affected other zinc refineries, such as Avonmouth (England) and Budel (Netherlands).

Books on lichens

The Observer's Book of Lichens (1963) by Alvin & Kershaw is now out-of-print. Unfortunately the publishers have declined to issue a second edition, because they maintain it would be uneconomic. Thus there is now no cheap popular work on lichens available in Britain.

Dahl's Analytical Keys to British Macrolichens (1968) are temporarily out-of-print pending the issue of a new edition. Members will be informed as soon as the new edition is available.

The book Macrolichens of Denmark, Finland, Norway and Sweden (1973) by Dahl & Krog is now available from The Richmond Publishing Co. Ltd., Orchard Road, Richmond, Surrey, for £3.50 post free.

Sunday Times air pollution survey

On 28 January 1973 the Colour Supplement of The Sunday Times published a five page article in which the results of a lichen/air pollution survey, carried out by school children and organised by the Advisory Centre for Education, were reported (see Bulletin 31: 10 (1972)). The article was popular in style, and brought lichens to the attention of many at their breakfast tables.

An analysis of the survey returns (up to 15,000 pollution packs were sold) revealed that the average age of participants was only 12 - 14 years, which emphasises that this was primarily an educational exercise. In addition to mapping lichens, the children were asked to test the bark pH of named trees and to record the worst pollution sights and smells ("when Mum burnt the prunes" from the Outer Hebrides) that they had experienced.

Enough returns were made from a sufficiently wide area for a "Mucky Air Map of Britain" to be produced, on which four levels of pollution could be distinguished. This map agrees well with that of Hawksworth & Rose in Nature (1970), though exact comparison is not possible as different zone indicators were used. This was a deliberate decision to avoid children having to identify epiphytes down to species level. Saxicolous indicators were also included so that children in towns would have more than Lecanora conizaeoides to look for. Certain zones were defined on growth form, which was fortunate as some of the colour illustrations were badly printed.

The Sunday Times article did not explain sufficiently clearly that the map they published gave only a general picture of sulphur dioxide pollution, and letters were received by the organisers from people who had over-interpreted it and hoped to use it for purposes varying from incorporation in development plans, to choosing a nice spot for retirement. This widespread interest highlights the lack of air pollution data for most of the country. The official National Survey is really a national town survey!

A pleasing aspect of sorting through the survey returns was the delight shown by the children in discovering lichens. Many enclosed pages of notes, drawings, photographs and observations. The survey indicated that lichen/air pollution mapping by untrained people is quite practical, and there is a suggestion that the limiting factor for accuracy in work of this type often seems to be the variability of apparently standard habitats rather than the sophistication of the scale used. A short paper discussing the scientific value of the results has been submitted to the Journal of Environmental Pollution.

O. L. GILBERT

Chemical Plant Taxonomy Newsletter

Attention is drawn to the Chemical Plant Taxonomy Newsletter (edited by Dr J. A. Mears, Department of Botany, the Academy of Natural Sciences, 19th and the Parkway, Philadelphia, Pennsylvania 19103, U.S.A.), which is produced twice-yearly, and includes information on meetings and symposia, new research programmes, recent publications and other data relevant to cryptogamic and phanerogamic chemotaxonomy. The Newsletter is supplied free of charge on request to its editor. Information from British workers in the field of chemotaxonomy on fungi and lichens for inclusion in the Newsletter should be sent to Dr D. L. Hawksworth, Commonwealth Mycological Institute, Ferry Lane, Kew, Richmond, Surrey, TW9 3AF.

Danger from using benzene

The University of Salford has issued the following warning on the use of benzene in their departments:

"The breathing of benzene vapour, and contact of liquid benzene with the skin must be avoided. Exposure to high concentrations may result in loss of consciousness and ultimately death. Repeated exposure to low concentrations of benzene can produce chronic effects which are mainly due to the action of benzene on the bone marrow. After a long latent period, this often leads to serious blood changes such as aplastic anaemia which may be irreversible and fatal.

"The maximum allowable concentration of benzene vapour in a working atmosphere is 25 ppm. This is below the level at which most people can detect it by smell. When benzene is open to the atmosphere inside a building, this should be done in a well-ventilated fume hood. If exposure to benzene vapour is unavoidable, a suitable respirator must be worn. Benzene should normally be used inside a closed apparatus.

"The use of benzene as a solvent must be discontinued, except where no other solvent can be used. Normally, toluene can be used instead: it is non-toxic, has much the same solvent properties as benzene, and is cheaper. Ample stocks of toluene are available in the stores. Stop using benzene except when absolutely necessary."

It should be noted that toluene can and should be used in place of benzene in work on lichens using thin-layer chromatography. Work at the British Museum (Natural History) has demonstrated that the results using toluene as a substitute for benzene are identical with those using benzene itself.

Single lens reflex cameras

The single lens reflex camera is an essential tool for serious lichen photography. This is because the lichen can be viewed and focused on a screen which gives the same image as that appearing on the film, the lens can be removed and extension tubes fitted to allow close-up work to actual size, many are capable of reasonably close-up work without extension tubes, and many have a built-in light meter.

The Consumers' Association have now tested all the major brands of single lens reflex cameras available for under about £200 and have published their results in the May 1973 issue of Which? The tests also included wide angle and telephoto lenses. A previous comparison of single lens reflex cameras was much more limited in scope, because it tested only cameras which were available for under £50; see Bulletin 25: 6 (1969).

In the current report seven cameras are picked as good value for money. The Canon FTb QL, discount price £110, was found to give the best overall performance, whilst the Asahi Pentax SP 500 (£77) gave a very good optical performance. The report stated that you could not buy one of the best cameras for less than £70, but on the other hand some of the cameras costing nearly £200 were inferior to those costing much less. The table on lenses gives the minimum distance available between object and lens, a particularly important consideration for lichen photography. The issue of Which? can be consulted in public reference libraries.

Conservancy sliced

The Government have now separated the Nature Conservancy into two separate organisations. The conservation functions of the former Conservancy are taken over by a new corporate body called the Nature Conservancy Council, and the research functions by the Institute of Terrestrial Ecology, which is being set up under the National Environmental Research Council.

F. A. Sowter library

By the generosity of the late F. A. Sowter, part of his valuable and interesting library is now in the possession of the Society. The contents of the library, some 300 items, are mostly additional to those already held in the Society's library. Some of the items are bound volumes of reprints and a number are books of great value. Most of these are being held at the Commonwealth Mycological Institute, Kew, by Dr. D. L. Hawksworth, where they may be consulted if, for any reason, their loan is inappropriate. Other items of mainly mapping and phytogeographical interest, as well as a number of books of more general interest, are held in Leeds by the Mapping Recorder, Dr M. R. D. Seaward. The remainder of the library, being the bulk of the reprints, are housed with the main Library with Dr D. H. Brown in Bristol. Most items can be borrowed by members and a list of the contents of the Sowter Library, with an indication of their current location, can be obtained, on loan, from the Librarian, Dr Brown, Department of Botany, The University, Woodland Road, Bristol, BS8 1UG. The division of the library between these three centres has been chosen to make the fullest possible use of the library, and members are encouraged to borrow from this and the main British Lichen Society Library.

Certain of the items held by Dr Hawksworth are unbound at the present time. However he has generously indicated that he will get these bound, over the next few years, at his own expense whilst retaining them with him whilst at a suitable centre. In addition he has kindly indicated that he will follow the example of Mr Sowter in donating the contents of his lichen library to the Society on his death. However as this event is, we hope, far in the future, he is willing to loan items from his collection if these cannot be obtained from other sources.

D. H. BROWN

Duplicate copies of The Bryologist and Revue Bryologique et Lichenologique

The Council has agreed that duplicate copies of the journals circulated to the Reading Circle may be disposed of to members of the Society. To this end it has been suggested that a form of auction is the fairest method for their disposal. "Bids" should be sent to the Reading Circle Secretary, Dr D. H. Brown, Department of Botany, The University, Woodland Road, Bristol, BS8 1UG, and can be accepted for separate issues, for all the available back issues or for these and copies which become available in the future. Bids may be in the form of quoted sums of money or as a percentage of the current cost of the journals. However, no money should be sent with a bid. The Reading Circle Secretary reserves the right to choose the most appropriate bid on behalf of the Society. It is regretted that complete runs are not available for both journals, apparently one of the results and hazards of the Reading Circle.

The available copies are as follows:

The Bryologist. Vol. 70 no. 2, 3, 4; vol. 72 no. 2, 3, 4; vol. 73 no. 2, 3, 4;
vol. 74, no. 1, 2; vol. 75 no. 1, 2, 3.
Revue Bryologique et Lichenologique. Vol. 35 no. 1 - 4 (one part); vol. 36
no. 1 + 2, 3 + 4 (two parts); vol. 37, no. 2, 3 (two parts); vol. 38
no. 1.

Current costs are as follows:

The Bryologist. £6.50 per volume or £1.80 per part.
Revue Bryologique et Lichenologique. £11.20 per volume or £2.80 per part.

D. H. BROWN

Tar spot mapping

Mr R. J. Bevan, Department of Botany, The University, P.O. Box 147, Liverpool, L69 3BX, is preparing a distribution map of Rhytisma acerinum Fr. (tar spot of sycamore) using the 10 km grid distribution scheme. Any information on the distribution of this fungus would be appreciated, especially presence or absence in particular grid squares. No specimens are required.

Additions to the British Lichen Society Library

As a result of increasing numbers of new titles arriving for the Library, it has been found necessary to discontinue the production of lists in the Bulletin. In future a list will be compiled at the end of each year of which a limited number of copies will be available for loan to interested members. The list will be obtainable from the Librarian, Dr D. H. Brown, Department of Botany, The University, Woodland Road, Bristol, BS8 1UG. It is greatly regretted that the increasing acquisition rate and increasing cost of duplication has made this move necessary. So far this year over 200 items have arrived in the library. A number of these have been provided by the generosity of Dr D. H. S. Richardson, as Xerox copies, following the completion of the text of his forthcoming book.

D. H. BROWN

New members

The following new members joined the Society between March and October 1973.
Armstrong, Dr P. H., 5 Pelham Way, Cottenham, CAMBRIDGE, CB4 4TQ.
Clarysse, Dr R., Markt 14, 1880 MERCHTEM, Belgium.
Elder, Miss S. M., 21 Towncourt Crescent, Petts Wood, ORPINGTON, Kent, BR5 1PG.
Moorbath, P., 37 Southwood Gardens, NEWCASTLE UPON TYNE, NE3 3BX.
Richmond, Dr D. V., Zennor, The Lynch, WINSCOMBE, Somerset, BS25 1AR.
Rogers, S. G., Kesteven College of Education, Stoke Rochford, GRANTHAM, Lincolnshire.
Sipman, H. J. M., Mauritsstraat 121, UTRECHT, Netherlands.
Van Dijk, H. W. J., Rode Kruislaan 887/4, DIEMEN, Netherlands.
Youngman, R. J., Hillcote, Tower Hill, DORKING, Surrey.

A mobile lichen - in which grid square?

In April 1968 Mr B. J. Coppins and I were visiting Aberystwyth when we noticed an old Morris traveller estate car in the University car park. On closer inspection it was seen that Bryum argenteum was growing well in the horizontal slot of one of the sliding windows, and an Usnea (probably U. subfloridana), about 1 cm long, was growing on the woodwork beside this window in a position where rain would run down. The car bore a local registration number. This phenomenon bore tribute to the relative lack of air pollution in Cardiganshire, as well as to the dampness of the climate, but it posed problems in lichen and bryophyte grid square mapping.

FRANCIS ROSE

Trades Description?

"In the course of his long and distinguished career as botanist and educator, Carroll W. Dodge has achieved particular distinction and recognition for his scholarly research in lichenology and his extensively published works on the lichens of Africa, Chile and Central America." - Phoenix Publishing, U.S.A.

Literature on lichens - 21

- ARMSTRONG, R. A. 1973. Seasonal growth and growth rate - colony size relationships in six species of saxicolous lichens. New Phytol. 72: 1023 - 1030. ("The peaks of growth corresponded approximately to peaks of rainfall.")
ASTA, J., CLAUZADE, G. & ROUX, C. 1973. Etude de quelques groupements lichéniques saxicoles et calcicoles du Parc National de la Vanoise. Travaux Scientif. Parc National Vanoise 3: 73 - 104. (Chiefly sociology.)
BARKER, G. M. A. 1972. Wildlife Conservation in the Care of Churches and Churchyards. Church Information Office, London. (25p. plus 5p. postage, from Church House Bookshop, Great Smith Street, London SW1. Several references to lichens, their importance and conservation.)

- BROSSET, C. 1973. Air-borne acid. Ambio 2: 2 - 9. (Includes distribution maps of acidity in precipitation over Europe from 1956 - 1966.)
- CULBERSON, C. F. 1972. Improved conditions and new data for the identification of lichen products by a standardized thin-layer chromatographic method. J. Chromat. 72: 113 - 125. (Description of standard method and data for 220 compounds and derivatives chromatographed in three solvent systems.)
- CULBERSON, W. L. 1973. The *Parmelia perforata* group: niche characteristics of chemical races, speciation by parallel evolution, and a new taxonomy. Bryologist 76: 20 - 29. (Chemical races of sexual and asexual morphs.)
- CULBERSON, W. L. & CULBERSON, C. F. 1973. Parallel evolution in lichen-forming fungi. Science, N.Y. 180: 196 - 198. (*Parmelia hypotropa* and *P. perforata*; chemical races of sexual and asexual morphs.)
- DEVLIN, J. P., FALSHAW, C. P., OLLIS, W. D. & WHEELER, R. E. 1971. Phytochemical examination of the lichen, *Lecanora rupicola* (L.) Zahlbr. J. chem. Soc. C, 1971: 1318 - 1323.
- EARLAND-BENNETT, P. M. 1973. Lichens from the Tanfield and Masham areas of north Yorkshire. Naturalist, Hull 925: 51 - 57. (Descriptive account with sociology.)
- ESSLINGER, T. L. 1973. Nomenclatural notes on some members of *Parmelia* section *Melanoparmelia*. Bryologist 76: 306 - 309. (Detailed discussion of the two isidiate members of the *Parmelia prolixa* group; the correct name for *P. isidiotyta* auct. angl. is shown to be *P. verruculifera* Nyl.)
- FERRY, B. W., BADDELEY, M. S. & HAWKSWORTH, D. L. (Editors) 1973. Air Pollution and Lichens. Athlone Press, London. (£6.25. An essential work of reference.)
- GILBERT, O. L. 1971. Some indirect effects of air pollution on bark-living invertebrates. J. appl. Ecol. 8: 77 - 84. (Relationships with lichens etc.)
- HALE, M. E. 1972. Natural history of Plummers Island, Maryland. XXI. Infestation of the lichen *Parmelia baltimorensis* Gyal. & For. by *Hypogastrupa packardii* Folsom (Collembola). Proc. biol. Soc. Wash. 85: 287 - 295. (Half the lichen colony was destroyed by the infestation.)
- HALE, M. E. 1973. Fine structure of the cortex in the lichen family *Parmeliaceae* viewed with the scanning-electron-microscope. Smithson. Contr. Bot. 40. (Taxonomic value of the epicortex.)
- HAWKSWORTH, D. L. 1973. The lichen flora and vegetation of Berry Head, south Devonshire. Trans. Proc. Torquay nat. Hist. Soc. 16: 55 - 66. (94 species; sociology and list with full details of status and habitat.)
- HAWKSWORTH, D. L. & PUNITHALINGAM, E. 1973. Typification and nomenclature of *Dichaena* Fr., *Heterographa* Fée, *Polymorphum* Chev., *Psilospora* Rabenh. and *Psilosporina* Died. Trans. Br. mycol. Soc. 60: 501 - 509. (*Polymorphum rugosum* (Fr.) D. Hawksworth & Punithalingam is shown to be the correct name for the fungus *Dichaena faginea*. A phytosociological taxon is described: *Dichaenetum fagineae*.)
- HITCH, C. J. B. & STEWART, W. D. P. 1973. Nitrogen fixation by lichens in Scotland. New Phytol. 72: 509 - 524.
- JESBERGER, J. A. & SHEARD, J. W. 1973. A quantitative study and multivariate analysis of corticolous lichen communities in the southern boreal forest of Saskatchewan. Can. J. Bot. 51: 185 - 201.
- JORDAN, W. P. 1972. Eruptent cephalodia, an apparent case of phycobial influence on lichen morphology. J. Phycol. 8: 112 - 117. (The shrub-like growths on *Lobaria* are shown to be cephalodia and not *Polychidium*.)
- JORDAN, W. P. 1973. The genus *Lobaria* in North America north of Mexico. Bryologist 76: 225 - 251. (Taxonomic account.)
- JORDAN, W. P. & RICKSON, F. R. 1971. Cyanophyte cephalodia in the lichen genus *Nephroma*. Am. J. Bot. 58: 562 - 568.
- KALB, K. 1972. Rindenbewohnende Flechtengesellschaften in Nürnberger Reichswald II. Hoppea 30: 73 - 91. (Sociology; *Usneion*, *Xanthorion*, etc.)
- LAMB, I. M. 1973. Further observations on *Verrucaria serpuloides* M. Lamb, the only known permanently submerged marine lichen. Occ. Pap. Farlow Herb. Crypt. Bot. 6. (Description and photographs.)
- LAUNDON, J. R. 1973. Lichens of Wicken Fen. Guides to Wicken Fen 10. National Trust, Wicken, Cambridgeshire. (Introduction; records of 39 species.)

- LEBLANC, F. & RAO, D. N. 1973. Evaluation of the pollution and drought hypotheses in relation to lichens and bryophytes in urban environments. Bryologist 76: 1 - 19. (Detailed discussion. The "premises and logic of the drought hypothesis are not acceptable.")
- LEBLANC, F. & RAO, D. N. 1973. Effects of sulphur dioxide on lichen and moss transplants. Ecology 54: 612 - 617. (Injury symptoms from transplants at Sudbury, Ontario, Canada. In Parmelia sulcata "the purer the air, the better the development of soredia.")
- LETROUIT-GALINO, M. - A. 1973. Les asques des lichens et le type archaeasce. Bryologist 76: 30 - 47. (Archaeascal and bitunicate asci.)
- LINDSAY, D. C. 1972. Lichens from Vestfjella, Dronning Maud Land. Meddr norsk Polarinst. 101. (Includes evidence of a circumpolar continental Antarctic lichen flora.)
- NOON, R. A. & HAWKSWORTH, D. L. 1973. The lichen flora of Lundy. Rep. Lundy Fld Soc. 23: 52 - 58. (133 species with habitat details. Ramalina siliquosa var. druidarum (Culb.) D. Hawksw. is a new combination.)
- PEVELING E. 1973. Vesicles in the phycobiont sheath as possible transfer structures between the symbionts in the lichen Lichina pygmaea. New Phytol. 72: 343 - 345.
- POELT, J. 1972. Ein zweiter Beitrag zur Flechtenflora des Bayerisch-Böhmischen Waldes bayerischen Anteils. Hoppea 30: 111 - 143. (72 species from this part of Bavaria.)
- PUCKETT, K. J., NIEBOER, E., GORZYNSKI, M. J. & RICHARDSON, D. H. S. 1973. The uptake of metal ions by lichens: a modified ion-exchange process. New Phytol. 72: 329 - 342.
- PYATT, F. B. 1973. A note on the discharge of ascospores with accompanying algal cells in Pertusaria pertusa. Revue bryol. lichen. II, 30: 345 - 347. (Remarkable explanation for the reproduction of a lichen.)
- SEAWARD, M. R. D. 1973. The ecology of Scunthorpe heathlands with particular reference to Twigmoor Warren. J. Scunthorpe Mus. Soc. II, 2: 1 - 28. (History and vegetation. Some references to lichens. Available for 25p + 5p postage from the Scunthorpe Museum Society, Oswald Road, Scunthorpe, Lincolnshire.)
- SEITZ, W. 1972. Flechtenwuchs und Luftverunreinigung im Grossraum von Saarbrücken. Ber. dt. bot. Ges. 85: 239 - 247. (Air pollution study.)
- SHIMWELL, D. W. & LAURIE, A. E. 1972. Lead and zinc contamination of vegetation in the northern Pennines. Envir. Pollut. 3: 291 - 301. (Includes three lichens.)
- SHOWMAN, R. E. 1972. Residual effects of sulfur dioxide on the net photosynthetic and respiratory rates of lichen thalli and cultured lichen symbionts. Bryologist 75: 335 - 341.
- SHOWMAN, R. E. & RUDOLPH, E. D. 1972. Water relations in living, dead, and cellulose models of the lichen Umbilicaria papulosa. Bryologist 74: 444 - 450.
- SIDE, A. G. 1973. 7th May - 'wall tour' at Sevenoaks. Bull. Kent. Fld Club 18: 21 - 23. (Lichen records from field meeting at Sevenoaks, Kent.)
- SKOREPA, A. C. & SHARP, A. J. 1971. Lichens in "packets" of lacewing larvae (Chrysopidae). Bryologist 74: 363 - 364.
- SMITH, D. C. 1973. The lichen symbiosis. Oxford Biology Readers 42.
- SMITH, D. C. 1973. Symbiosis of algae with invertebrates. Oxford Biology Readers 43.
- SMITH, D. C. & MOLESWORTH, S. 1973. Lichen physiology. XIII. Effects of rewetting dry lichens. New Phytol. 72: 525 - 533.
- SOWTER, F. A. 1972. Leicestershire and Rutland cryptogamic notes. 2. Trans. Leicester lit. phil. Soc. 66: 21 - 25. (Records of 11 lichen species.)
- STEELE, R. C. & WELCH, R. C. (Editors) 1973. Monks Wood. A Nature Reserve Record. Nature Conservancy, Huntingdon. (Detailed book on Monks Wood, Huntingdon & Peterborough, including a section on lichens by J. R. Laundon, which includes sociology and list of records. The book is obtainable from Monks Wood Experimental Station, Abbots Ripton, Huntingdon, for £2.00 + £0.25 postage.)
- SUGIYAMA, K. 1973. Distribution of Parmelia tinctorum in urban area in Japan. Miscnea bryol. lichen., Nichinan 6: 93 - 95. (Distribution in cemeteries in relation to air pollution.)

- SUNDSTRÖM, K. -R. & HALLGRÉN, J. -E. 1973. Using lichens as physiological indicators of sulfurous pollutants. Ambio 2: 13 - 21. (Effects of sulphur dioxide on photosynthesis in lichens.)
- THOMSON, J. W. 1972. Distribution patterns of American arctic lichens. Can. J. Bot. 50: 1135 - 1156. (Types of distribution patterns, with discussion of dispersal mechanisms, origin and ecology. Sixteen maps.)
- TRASS, H. 1973. Lichen sensitivity to the air pollution and index of poleotolerance (I.P.) Folia cryptog. Estonica 3: 19 - 22. (Includes lichen species in relation to various types of landscape.)
- VEZDA, A. 1972. Flechtensystematische Studien VII. Gyalideopsis, eine neue Flechtengattung. Folia geobot. phytotax. 7: 203 - 215. (Monograph of four species; Gyalideopsis anastomosans P. James & Vezda and G. muscicola P. James & Vezda are reported from Britain.)
- WARD, S. D. 1971. The phytosociology of Calluna-Arctostaphylos heaths in Scotland and Scandinavia. I. Dinnet Moor, Aberdeenshire. J. Ecol. 58: 847 - 863. (Includes an account of the lichen flora (chiefly Cladonia spp.) in relation to the state of the Calluna canopy, especially as regards recovery from burning.)
- WERNER, R. G. 1973. Etude phyto-et paléogéographique de la flore lichénique d'une île, la Corse. Revue bryol. lichen II, 39: 293 - 343. (List of species.)
- WETMORE, C. M. 1973. Multiperforate septa in lichens. New Phytol. 72: 535 - 538. ("Multiperforate (hyphal) septa are commonly found in some lichens.")
- WIRTH, V. 1972. Die Silikatflechten-Gemeinschaften im außeralpinen Zentraleuropa. Dissnes Bot. 17. (Important publication on the sociology of lichens on acid rocks. Haplocarpon hydrophilum (Fr.) V. Wirth (Lecidea hydrophila Fr.), H. melinodes (Körb.) V. Wirth (L. melinodes (Körb.) Magnusson & Lynge), H. soledizodes (Lamy) V. Wirth (L. soledizodes (Lamy) Sandst.) and Orphniospora atrata (Sm.) Poelt ex V. Wirth (Buellia atrata (Sm.) Anzi) are new combinations; several other combinations (i.e. under Fuscidea, Haplocarpon flavocaerulescens) are not validly published.)
- WIRTH, V. & VEZDA, A. 1972. Zur Systematik der Lecidea cyathoides-Gruppe. Beitr. naturk. Forsch. SüdwDtL 31: 91 - 92. (The Lecidea cyathoides group are transferred to Fuscidea V. Wirth & Vezda gen. nov. New combinations of British species are Fuscidea cyathoides (Ach.) V. Wirth & Vezda, F. gothoburgensis (Magnusson) V. Wirth & Vezda, F. kochiana (Hepp) V. Wirth & Vezda, F. lygaea (Ach.) V. Wirth & Vezda, F. periplaca (Nyl.) V. Wirth & Vezda, F. recensa (Stirt.) Hertel, V. Wirth & Vezda, and F. tenebrica (Nyl.) V. Wirth & Vezda.)
- YARRANTON, G. A. 1973. Distribution and succession of epiphytic lichens on black spruce near Cochrane, Ontario. Bryologist 75: 462 - 480. (No true succession was found.)

Paraphenylenediamine

Supplies of p-phenylenediamine (Pd) are available from the Secretary, Mr. J. R. Laundon, Department of Botany, British Museum (Natural History), Cromwell Road, London SW7 5BD (telephone: 01-589 6323 ext. 552) for collection by hand. A 25 g bottle costs 50p. It is regretted that it cannot be supplied by post. See Bulletin 26: 5 (1970) for the hazards of this chemical.

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