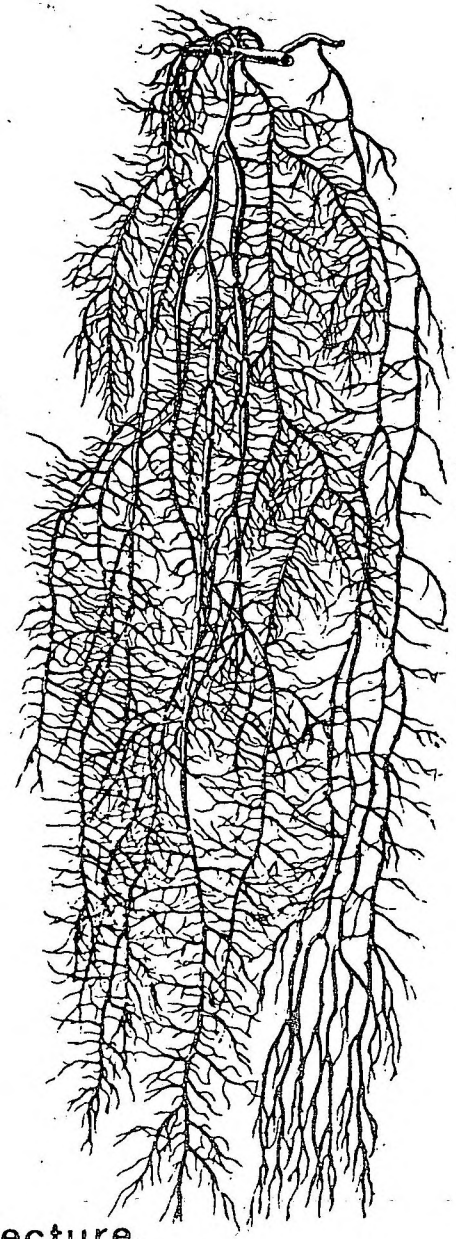
No.49
Winter 1981

BRITISH LICHEN SOCIETY BULLETIN



Omphalina cricetorum

Edited by O.L.Gilbert,
Dept. of Landscape Architecture,
The University, Sheffield S10 2TN

The conservation of flowerless plants

This was the title of a one-day conference arranged by F.H. Brightman for the Linnean Society and held at its Rooms in London on 26 September 1981. The feeling of the meeting was that, in comparison with higher plants, flowerless ones suffer from several common problems, such as the fact that fewer people know or care about them and they are difficult to cultivate in botanical gardens. It was interesting to compare the problems of lichen conservation with those of other groups. For example, the bryologists believe that one of the greatest threats is agricultural improvement, especially drainage of the lowlands and the eutrophication of valley bogs caused by fertiliser run off. Phycologists, on the other hand, are concerned that aggressive introduced species such as Sargassum and Macrocystie, shoots of which can extend up to 5 cm per day, are a potential threat and they have spent much time trying to eliminate them. Water pollution appears to be the major threat to freshwater algae. None of these factors are of more than local importance to lichenologists, who regard woodland management and the spread of air pollution as the most important current threats.

A common problem (except for mycologists) is over-collecting, about which everyone had horror stories to relate. It seems clear that our attitudes towards collecting lag well behind those of most other specialist groups; social collecting taboos akin to those associated with birds eggs or orchids are needed for certain of the larger more easily identified species but would be inappropriate for many crustaceous lichens.

It was particularly interesting to learn about the different approaches being taken to the conservation of flowerless plants.

The BLS has put most of its effort into site appraisal and already has a considerable number of site lists ranked in order of merit, backed up by maps and descriptions. The British Bryological Society is more species or 'red data book' orientated, and has compiled a list of its most threatened species. The mycologists have to cope with an excessive number of species and have not developed a comprehensive mapping scheme but compile species lists as the need arises. The phycologists with highly mobile taxa are not really organised for conservation beyond discouraging the collection of certain mainly northern species. In principle, red data site lists are preferred to red data species lists by lichen conservationists, and information suitable for comparative site assessments seems to be more useful than the compilation of over-detailed lists (although totals can be impressive) and elaborate phytosociological analyses. One of the most significant observations of the day was that a scuba diver enlisted to help clear Sargassum refused to help as he found the alga so beautiful. The philosophy of nature conservation was hardly mentioned, but a powerful reason for the conservation of lower plants is that they provide wonder and simple enjoyment.

Informal discussion during breaks in the programme revealed that there is currently much confusion over the effects of agricultural chemicals. The situation is complicated. Work at East Malling has shown that an annual application of paraquat or paraquat/simazine to the ground in orchards leads to the establishment of extensive stands of the mosses Bryum argenteum and B. bicolor or, if the site is long undisturbed to a lichen sward dominated by Cladonia coniocraea. This community is also resistant to common fungicides. Ray Woods has found that a heavy experimental application of the bracken herbicide azulam + dessipron (an oil-based spreader) rapidly kills many lichens but azulam on its own in water has no effect after two months. Aerial spraying of fertiliser on Fyfield Down, Wilts, caused a severe deterioration of the lichen flora on sarsen stones. (Are most reports of 'spray damage' really a eutrophication effect?). Well documented factual case histories of spray damage preferably

backed up by photographic evidence are urgently required. The Conservation Officer would be glad to receive full details of incidents where damage to lichens has been caused by agricultural chemicals.

In Britain one nature reserve (the coast of the Isle of Lundy) has been set up to protect marine algae. The Nature Conservancy Council takes lichens and bryophytes into consideration when grading sites and it was particularly gratifying to see how frequently lichens are mentioned in their important 'Conservation Review' 1977. The Mycological Society is actively pursuing a policy of recording as fully as possible the fungus flora of nature reserves. Experiments involving lichen transplant work have been underway for ten years. In some parts of Europe similar small beginnings are being made; for instance, in Scandinavia some reserves have been declared because of their cryptogamous flora, and in Poland the exploitation of lichens for dyeing and perfumery is controlled by law. But for the rest of the world our information is scanty indeed. The last speaker drew attention to the great threats to flowerless plants that undoubtedly exist; in addition to the well-known deleterious effects of pollution, recreational activities cause havoc on sea coasts and in mountain areas, lichens are directly exploited without check, and tropical forest is being destroyed at a catastrophic rate. It is heartening that the Linnean Society should devote a day to discussing these matters, but now more broadly based discussions are urgently needed, and the sooner the better.

(I am grateful to Mr.F.H. Brightman and Dr. M.R.D. Seaward who helped with the preparation of this article. - Ed.)

Nominations for Vice-president, officers and Council members

Nominations for Vice-president for 1982 - 83, officers for 1982 and three Council members for 1982 - 83 should be sent to the Secretary before 26 December 1981. No person may be nominated without their consent. Any number of nominations

may be entered, but not more than one per position. Mr. V.J. Giavarini, Dr. Pauline B. Topham, and Miss F. Joy Walker retire from the Council and are not eligible for re-election as Council members.

Annual General, Lecture and Exhibition Meeting 9 January 1982

The Annual General Meeting will be held at 10.30 on Saturday 9 January 1982 in the Demonstration Room in the Department of Palaeontology (ground floor) at the British Museum (Natural History), Cromwell Road, London, SW7 5BD. The nearest LT Underground station is South Kensington, and Cromwell Place or the subway connects with the museum. Cars may be parked in the museum's front car park. It is hoped that all members will endeavour to attend, and take advantage of London's new low fares.

Agenda

1. Apologies for absence.
2. Minutes of the last Annual General Meeting.
3. Matters arising.
4. Reports of the officers.
5. Consideration of subscriptions increase from 1 January 1983: £15 for three issues of The Lichenologist or £18 for four issues.
6. Proposal by Council that they be given powers to decide before next July on numbers of issues of The Lichenologist.
7. Meetings 1982 - 83.
8. Election of Auditor.
9. Election of three members of Council.
10. Election of Officers.
11. Election of Vice-president.
12. Election of President (Council's nomination: Dr. M. R. D. Seaward).
13. Any other business.

J. R. LAUNDON
Honorary Secretary.

Following the Annual General Meeting there will be a slide show from 11.30 until 12.00 and an exhibition meeting from 12.00 until 12.30. Members are kindly requested to make a special effort to contribute exhibits of lichenological interest. Demonstrations should include a title and name of exhibitor.

The lecture meeting will continue in the afternoon in the same room. The meeting is entitled WEST EUROPEAN FORESTS. Non-members are welcome. Please display the enclosed poster. The full programme is as follows:

10.00 Museum opens to the public.

10.30 Annual General Meeting.

11.30 Slides of 1981 field meetings (arranged by Dr. O.L. Gilbert).

12.00 Exhibition meeting.

12.30 Lunch. Members are kindly requested to make their own arrangements. The restaurants Barino (1 Harrington Road) and Daquise (20 Thurloe Street) are recommended.

14.00 Lecture. F. ROSE (University of London): The lichen vegetation of West European Forests and its relationship with present and past environments.

15.00 Tea interval (tea gratis).

15.30 Lecture. O. RACKHAM (University of Cambridge): The history of British Woodlands.

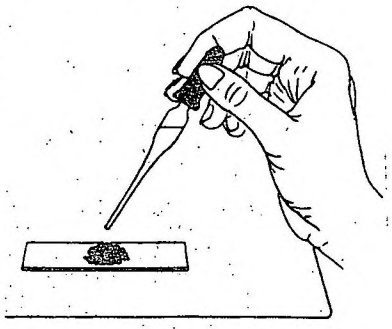
16.00 Lecture. P.T. HARDING(Institute of Terrestrial Ecology): The invertebrates of old timber.

16.30 Discussion.

17.00 Close.

Joint Bristol University (Dept.Extra-Mural Studies)/British Lichen Society meeting on 'Field and Laboratory Work with Lichens'.

A residential week-end from Friday evening to Sunday afternoon, 19-22 March 1982, at Burwalls, Leigh Woods, Bristol.



Tutors: D.J. Hill, B.Sc., D.Phil.
P.W. James, B.Sc., F.L.S.
D.L.Hawksworth,B.Sc., Ph.D., D.Sc.

Fee: £30.80

Lichenologists who wish to follow up their field work with an accurate record of what they have done and with study in the laboratory may like to support their interests with a knowledge of current scientific methods. This course will aim to help the lichenologist who does not have the resources of a University, Institute or Museum, make valuable contributions to his subject. It will deal with a wide variety of aspects from clarifying the work he wishes to carry out or problem he wishes to investigate, obtaining grants, apparatus and methods in the field etc., aspects of laboratory work, the use of the scientific literature, and the problem of writing up a report or paper for publication. Prior enrolment on this course is essential. Those wishing to enrol please inform Dr. D.J. Hill, Dept. Extra-Mural Studies, 32, Tyndall's Park Road, Bristol, BS8 1 HR.

Spring Field Meeting, Newport, ISLE OF WIGHT, Monday evening to Sunday afternoon 12 - 18 April, 1982

The spring meeting for 1982 will take place on the Isle of Wight, it will be based at Newport, which is the capital town. The varied geology of the Island means that a wide variety of habitats are available within a comparatively small area and this is reflected in the lichen flora; over 300 taxa have been recorded in recent years. It is intended to look at churchyards, coastal rocks, old chalk grassland, lowland heath, coastal woodlands, landslipped areas and ancient woodland fragments, many of

these sites being in areas of great scenic beauty. At this time of the year, the Island is peaceful and the roads quiet.

Accommodation will be at Calvert's Hotel, Quay Street, Newport (Tel. Newport 525281). It is hoped to obtain a group reduction, in which case the cost will be £11 per day, bed, breakfast and evening meal. Laboratory facilities will be available at a nearby school in the evening for which a small additional cost will be made. Microscopes will be available but members may wish to bring their oil immersion lenses.

There are regular ferry services from Portsmouth, Southampton and Lymington to the Island and connecting buses to Newport. Transport during the week will be by minibus for which a charge will be made on a per capita basis; any members bringing their own cars over will be expected to pay this as well.

Please contact the leader AS SOON AS POSSIBLE if interested in attending so that a group booking for accommodation can be made. Also, details of alternative accommodation can be provided.

C.R. Pope,
"Fairview",
Station Road,
Havenstreet,
Isle of Wight.
Tel: 0983 882134 (evenings)

Summer Field Meeting, ALGARVE, Portugal, 22-29 August 1982

Date: as above, with the possibility of members staying on a further week; the leader will probably be there until 5 September.

Travel and accommodation: best plan is a package holiday. John Hill Travel of Richmond uses two hotels in Quarteira, which is 'central', and this year the cost of a return flight Gatwick-Faro, with half-board for one week at the Dom Jose (3 star) is £229, two weeks £319 extra meals £4-5. At the Dom Pedro (4 star) bed and breakfast only is £228 for one week, £328 for two weeks. Extra meals, £7 each. They also have cheaper pensao (pension) type accommodation in the same town. These prices are this year's and they anticipate a 10% increase for next year. The current Apex flight cost is c. £130, but accommodation is very difficult to find even towards the end of the tourist season.

There is no adequate public transport in the Algarve so we will hire cars as necessary for the group. Costs this year are for a Mini, unlimited mileage £59 per week; sharing would help. British driving licence is O.K.

Field excursions: it is anticipated that the province will be looked at from end to end! Among many interesting habitats are the humid uplands of the Monchique Massif, with a variety of tree species carrying Lobarion; syenite rock outcrops and some heathland rising to an altitude of 900m; Cape St. Vincent, the extremely exposed south-western peninsula which is a limestone plateau; a schistose rock region in the north of the province with cork oaks, pines and Cistus scrub; also the coastal plain has a variety of rock types, nearly all very young, and a vegetation which contrasts with that of the uplands as the rainfall is much lower. For further information on the area see Jones in Lichenologist: 12 253-275 (1980).

Members intending to be present at the meeting should please inform the leader who will provide all possible help.

P.M.Jones,
Dept.of Applied Biology,
University of London,
Hortensia Road,
London, SW10 0QX.

Subscriptions to be raised in 1983 but by how much? Ballot to be taken

Due to the ever increasing cost of publishing the Lichenologist, which in 1982 will consume £9.75 of your £10, subscriptions will have to be raised from 1 January 1983 to around £15. This will cover rising costs and also provide a small surplus so the subscription can hopefully remain steady for a few years. We have been asked by the editor and Academic Press if we would give thought to expanding the Lichenologist to four parts a year to increase the viability of the publication and because a number of papers are suffering delay due to lack of space. To pay for this extra part (and cover other rising

costs) it has been calculated that the next rise in subscriptions would have to be from the current £10 to £18.

Council having debated this issue feels it needs guidance from the membership. Consequently before a decision is made the mood at the A.G.M. will be tested and the results of a postal vote taken into account. We would like your views on this issue so please fill in and return the pink ballot slip without delay.

Subscription reminder

Subscriptions are due on the 1st January 1982. Please pay promptly as reminders are expensive to send out.

Rates

Ordinary member £10 or $ 25 per year.
Junior Associate £1 Family Membership £0.25
Reading Circle £1
Subscriptions should be sent to P.W. Lambley c/o Castle Museum, Norwich, NR1 3JU.

Grapevine

For Tim Moxham three cheers on being awarded a Churchill Travelling Fellowship to work primarily in France and Yugoslavia on the effects of commercial harvesting of lichens from Mediterranean forests. The Churchill Memorial Trust was rightly impressed by Tim's work on the use of lichens in the perfume industry and by the intensive programme he aims to carry out on the lichenological, conservationist and social consequences of large-scale lichen collection for industry.

Parmelia austrosinensis and P. reticulata have, Grapevine is informed, turned up in a perfumed setting of a different sort. A colleague of Brian Coppins at Edinburgh presented him with specimens of these two plants taken from a packet of Whole Garam Masala (curry spices). The masala, packaged in April, 1981, was bought in Bombay and is produced by Sugram Food Products Industries, Plot No. A-37, Badlapur M.I.D.C., Dist. Thane, Maharashtra, India. The lichens are intentionally present and not a contaminant.

Grapevine has no information on their taste.

Lichen conservation earned a farmer (of all people!) a special award in the 1981 Farm Buildings Award Scheme, promoted by the Country Landowners' Association. After careful removal of the lichen-covered slates of an old stable block which he wished to convert into holiday accommodation, he skilfully replaced the slates with the lichens undamaged and the roof over two feet higher. The judges duly admired his skill and regard for the building's appearance. Grapevine sourly prays that his son/brother/wife was not out in the fields at the same time spraying pesticides left, right and centre.

We know, of course, that these are days when lichens go generally unknown or unregarded, days when the eventual winner of the BBC 1981 Mastermind International Trophy had to pass when asked what is the name given to an alga and a fungus living in an intimate association, days when Radio 4's Mastermind of Gardening competitors all know like clockwork that the best treatment for lichens is tar-wash, tar-wash and tar-wash again if the first helping fails. The average Briton's way with lichens is possibly best symbolised in an experiment described by N.G. Bayfield et al in the Journal of Applied Ecology earlier this year, wherein small pieces of Cladonia turf were submitted to " a single footfall from a 55 kg person wearing British size 4½ smooth-soled shoes."

Fortunately the rarer few are always among us. There will always be men like A.C. Benson who asked in his diary in 1904, "Beauty, beauty? What is it? Is it only a trick of old stone and lichens and sunlight?". Men, too like the Anglo-Saxon elegist of "The Ruin" who gave our island's literature its earliest description of a lichen community when he meditated among the remains of Roman Bath:

"Oft daes wag gebad
raeghar ond readfah rice aefter odrum."

(This wall, grey and red-stained has seen many a change of rule). Like today's urban lichenologist this old religious poet was awed by the staying power of lichens. Perhaps in this stamina they most resemble humanity. On that note for the moment grapevine is content to rest.

VINIFERA

Reissue of early numbers of the Bulletin

It has been decided to reissue numbers 1-18 (1958-66) of the Bulletin to give members the opportunity of completing their sets. There appear to be very few entire runs in existence but the Secretary has one in mint condition from which copies will be made using two sided xerox paper. Stencils for some of the early numbers were cut using a worn typewriter, any imperfections will of course be reproduced by the photographic process giving the copies an authentic air. If there is a significant demand for post-1966 numbers these will also be made available. It is hoped that as many members as possible will take this chance to add to the number of complete sets in existence. They should also get much pleasure from the contents. Did you know that an Annual General Meeting was held at Chagford, Devon or that one of the first records made by members was Roccella fucoides growing on an old oak near Fishguard?
(Details of Bulletins for sale can be found inside the back cover).

Country diary - 3: Westmorland

By mid-May news of the discovery of Lecanora achariana in the Lake District had filtered down the grapevine. This plant enjoys 'Table 1 status', being listed on page 5 of the current checklist as one of those lichens 'apparently now extinct in the British Isles', having not been seen this century. On the hot Saturday which marked the end of May, four of us, including Dr. Roderick Corner, the plant's discoverer, met with the object of seeing the lichen and making a thorough survey of its habitat. As we climbed into the hills we had much news to swop, for lichenologists are thin on the ground and a day spent in the company of three other enthusiasts is all too rare. Without losing time by examining the lower slopes, we made straight for our objective, a high corrie well away from the main paths which were thick with walkers.

Once an amphitheatre of cliffs enclosing a shallow tarn had been reached, finding the lichen presented no problem as

it grows thickly on the tops of 20-30 flattish boulders sticking out of the water. It is difficult to imagine a more distinctive species. It is large, light-green and semi-foliose in appearance, something like a cross between Squamarina cartilaginea and an exuberant Lecanora muralis. There seemed nothing particularly unusual about the habitat; the tarn even looked as though its level might have been raised in the past. However, the presence of nitrophilous associates - Aspicilia caesiocinerea, Lecanora muralis, Physcia caesia - suggested that at certain times of the year there were resident waterbirds or gulls around. A close examination of the species revealed that the underside of the L. achariana colonies were teeming with a lichenicolous mite subsequently identified as Ameronothrus maculatus, a taxon more often found in estuarine situations.

After we had drunk our fill of this elegant lichen we started compiling a list of its associates. Almost at once it was observed that at water-level the boulders were colonised by a conspicuous, brown, foliose, semi-aquatic lichen which over the next few hours changed in our minds from a Peltigera to a Lobaria (briefly), to a Dermatocarpon, to a Pseudocyphellaria before it finally dawned that it was Nephroma parile. The still, sunlit water allowed us to gaze into the depths and see the zonation of aquatic lichens with a clarity normally associated with seaside rock pools. Thirty centimetres down a turf of the rare Collema fluviatile graded sharply up into a Dermatocarpon leptophyllum - Staurothele fissa zone. Above that were Collema flaccidum and Dermatocarpon weberi before the Nephroma became dominant.

Sharing the boulder-tops with L. achariana was a dark Phaeophyscia, identified as a "funny form" of P. orbicularis but with sufficient uncertainty for a collection to be taken. News came from Edinburgh a week later that it was the first record of Phaeophyscia sciastra from England. This is another example of the common phenomenon in lichen fieldwork that the most exciting things happen to people who cannot fully appreciate them at the time. Of course we knew nothing of this bonus as we lay back contentedly on the grass eating our sandwiches and eyeing the summit ridge to be explored that afternoon.

Lichens and taxidermy

At first glance a museum store full of stuffed birds and mammals might seem an unlikely place to search for lichens. However the better Victorian taxidermists prided themselves on creating an attractive habitat setting for their specimens and in doing so often used lichens. Christopher Frost in his recently published book on Victorian taxidermy (1) says 'that reeds, grasses, mosses, ferns and lichens were normally collected in advance and plunged into benzolene or turpentine to kill insects, then hung until completely dry. They were then often hand painted in oils!' This last statement does not seem to apply to lichens which were generally left uncoloured. In most cases the lichens appear to have been gathered locally. I know of one taxidermist, now dead, who said that as an apprentice for Gunn's of Norwich he was paid a few pence per pound for any lichens he collected.

In a walk round the collections at Norwich Castle Museum I noted that, as might be expected, lichens were absent from cases of waders, and few in those with duck. However they were widely used in creating the habitats of gamebirds, birds of prey and small passerines. Cladonia species featured prominently especially Cladonia furcata, Cladonia portentosa, and Cladonia rangiferina. There was often a feeling for lichen communities for instance a ptarmigan surrounded by Hypogmnia physodes and Cladonia sp., and a partridge with its feet in Cladonia foliacea. The Xanthorion was moderately well represented in a case depicting a pied wagtail feeding a young cuckoo, the associated lichens included Xanthoria parietina, Ramalina fastigiata, and Evernia prunastri. Lichen covered twigs and bark were also used frequently and these generally are still clothed with Ramalina species, Evernia prunastri, Hypogymnia physodes and on the bark Parmelia caperata and Parmelia sulcata.

A few cases have a more exotic flora, which suggests that either the lichens were imported or the cases were made elsewhere in Britain or abroad. For instance, in a case showing two polecats Lobaria pulmonaria was present together with Cladonia portentosa, Cladonia coccifera, Xanthoria parietina and probably Arthrorhaphis citrinella. The best find of the day, though, was a case of

humming birds which also had Usnea sp. and Teloschistes sp. to complete an attractive display.

Reference

(1) Frost C. Victorian taxidermy - its history and finest exponents. 1981. Privately printed.

PETER LAMBLEY

Regrading sites of lichenological importance

The Nature Conservancy Council has awarded the society a grant of £500 to enable a regrading of sites known to be important for epiphytic lichens. For some time your Conservation Committee has been aware that this was an urgent priority as Britain is particularly rich in such communities. It is envisaged that the assessment will be on a six-point scale: internationally important, national grade 1, national grade 2, regional, local, of little value. The work which should be accomplished early next year will take the form of a report to the NCC, though it is realised that information on a few habitats, such as the Scottish pine woods, is still incomplete.

Report on the Bristol Workshop meeting, 'Lichens on Limestone'

One week-end in April some of us met to study lichens on limestone. This was an experimental workshop week-end course organised jointly by the extra-mural department of Bristol University and the BLS; it was based on the University hall at Burwalls, just over Brunel's magnificent suspension bridge (10p a time). The first thing that struck us was wonder at Bristol University's shyness about Burwalls. I have lived close by for the last fifteen years, yet had never heard of it, and became very lost trying to find it. Once discovered it proved very comfortable, with excellent food and lovely grounds. The week-end was divided between field work (based on Cheddar Gorge and Ubley Warren), lectures from Peter James and David Hawksworth and laboratory work in the university botany labs. The

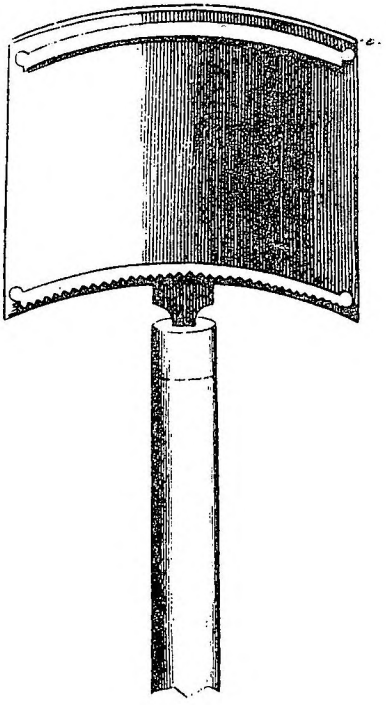
disadvantage of this was that these were over a mile away from Burwalls, which, to a perennial 'forgetter' like me proved a little hazardous. The lectures included a most helpful guide through the maze of Caloplaca species we would encounter, with the complications of Protoblastenia and Candelariella carefully and clearly pointed out. 'Aha' we thought, 'all is now clear, we can't possibly get them confused' - how wrong at least one of us was! Other lectures covered pyrenocarps, the lichen communities to be expected and the relationship between species and pH values of the substrate. There are not only basic lichens and acidic lichens, but some are more so than others, and a scale can be devised to indicate pH values of the substrate.

The field sessions were memorable for the array of confusing grey crusts of all textures and shades which our leaders greeted individually and with affection. The finding of a species as distinctive as Solorina saccata (a personal first) was, for me a highlight. The weather was cold and wet, but this did not seem to affect the enthusiasm of the party; even during lunch breaks there would be someone still chipping away. (With all the bits flying around it seems to me that 'protective goggles' should automatically appear in the lichenologist's kit list, after 'hammer and chisel'.)

As with all such gatherings, the things which stay in the conscious memory are the human ones - the sight of a revered past president of the society, who had come to Burwalls to welcome us, cowering behind his brief-case at the opening lecture, saying 'I'm not really here, I haven't paid my fee.' An aged member putting the rest of us to shame by the way she skipped up and down the sides of Cheddar Gorge like a mountain goat. The delight of the Australian in our English spring. The horror on the face of a driver who locked her only set of keys inside her Metro (it took the AA man an hour to get them back). As for the unconscious memory, that too has been stimulated so that the next time we visit limestone country the mass of confusing grey crusts will appear less confusing and more familiar.

MARY HICKMOTT

A note on Lichen-scrapers



In the second edition (1803) of his Treatise on the culture and management of fruit trees William Forsyth of Kensington, gardener to George III, included an illustration of a tool known as a lichen or moss-scraper. The illustration is reproduced here by kind permission of the Brotherton Library, Leeds University. The tool, it is explained, was in the shape of a curry-comb for scraping moss and lichens, etc., off the stems and branches of trees. It could be fitted with handles of various lengths. The back of the tool and the edges of the scraper are a little concave. Such scrapers appear to have been used in rose tree maintenance also, as well as in lichen collection for local dyeing activities.

Enquiries so far have failed to locate an example of the implement. It seems quite likely that one is masquerading in some museum or other as a kind of curry-comb, Mr.D.Macer Wright in a recent article in the Field recalled finding one among some old gardening tools he turned out some years ago, but he informs me that "by a most unfortunate mishap the tool was carted away for scrap". He dated the tool as of the Victorian period "by the figure '86 burnt into the handle. There were also some initials but these had only been scratched in and were illegible".

For the finest fruit-tree maintenance William Forsyth further recommends "washing the trees annually in February or

March with the following mixture which will have the same effect on it as a top dressing has upon grassland. Mix fresh cowdung with urine and soap-suds, and with this mixture wash over the stems and branches of the trees, as a whitewasher would the ceiling or walls of a room."

ALBERT HENDERSON

An early nineteenth Century lichen collection from Chatsworth, Derbyshire

In 1979 one of us discovered in the library at Chatsworth a small box containing lichen specimens. It was labelled on the outside, in what appears to be an early 19th Century hand, "Scott's Mosses". The box held 22 sheets upon which are mounted 24 lichen specimens. The name of the species is written on the bottom of the small sheets in a similar hand, followed by a brief locality. Some of these are merely a habitat note such as 'on the moors', 'on the bark of oak', but eight are given more precisely as 'Old Park' and one as 'Old Park, Chatsworth'. There seems little doubt that all are from the Chatsworth Estate or close by. A further 32 more fully detailed specimens are mounted on three stiff sheets of card and labelled in a different hand. These are either from Derbyshire (Chatsworth, Buxton, Matlock) dated 1844 - 1841 or Scotland (Grampians, Dundee, Sidlaw Hills) collected between 1837 - 1841, some of those from the Grampians are initialled N.B. The accuracy of naming all the specimens is of a high standard.

Who was Scott? We have been unable to identify Scott with certainty but believe he was Robert Scott, a gardener at Chatsworth; in the 1840s Scott held a position there of some importance as "Superintendent of the plant department in the large Conservatory". There is evidence from his authorship of several articles in Paxton's Magazine of Botany, that he was a well-educated and thoughtful botanist with an interest in cryptogams who might well have been capable of identifying the collection of lichens (and 95 bryophytes which occupy two further boxes).

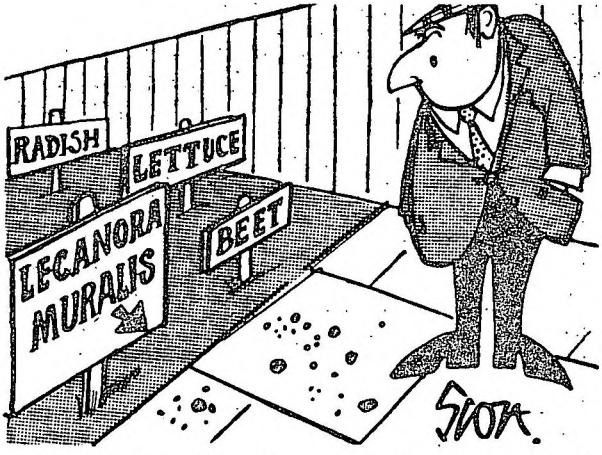
The Lichen Collection. The interest of the collection is that several of the locally gathered species have never been recorded from Derbyshire while others are now very rare or extinct. Those not previously recorded are as follows: Alectoria nigricans, on the moors; Cladonia foliacea, moors near Buxton; and Pannaria pezizoides, Chatsworth Park 1845. Others which are now very rare or extinct in the county are Caloplaca luteoalba, Chatsworth 1845; Parmelia caperata, on trees, Old Park; and Physconia pulverulacea, on moors, Buxton. A further nine species predate the first recognised county record. Possibly the most interesting lichen is Alectoria nigricans which has not previously been recorded in the Pennines further south than Ingleborough.

Details of the bryophyte collection and further biographical material on Scott can be found in the British Bryological Society Bulletin 12: 36-38 (1981)

O.L. GILBERT and M.A. PEARMAN

Thank your lucky spots

ON the slabs outside the french windows, and in the area generally, a lot of round spots have appeared. These are grey / green in colour and vary in size from being quite small to about two inches in diameter and are very unsightly. The strange thing is that we have been here over 40 years and it is only in recent months they have appeared.



One explanation of your spots may be that they are lichen — possibly Lecanora muralis — although without seeing them a museums botanist could not be sure. If so, please don't regard them as unsightly. Take a positive approach and regard yourself as lucky to have them. They do no harm.

From the Leicester Mercury,

A. FLETCHER

New, rare or interesting British Lichen records

Candelariella vitellina f. flavovirella. Since the article for Licheologist, 13, 3, (1981) was prepared this citrine-green form has also been noted from two sites in Cumberland and from two churches constructed of Magnesian limestone near Doncaster, South-West Yorkshire. It is probably much overlooked and should be searched for wherever the yellow form is abundant. O.L.Gilbert.

Catapyrenium psoromoides V.C. 89, East Perth: on mossy base of an old oak at edge of wood by a pasture, Milton Wood National Nature Reserve, north of Blairgowrie, 1981. This is the first British record for at least 150 years, the only two previous gatherings having been made from ash and elm in Sussex by Borrer. The Scottish material is fertile unlike the earlier (type) collection. B.J.Coppins and R.K. Brinklow.

Chaenotheca chrysocephala V.C. 69, Westmorland: in bark fissures on the sheltered side of old oaks, Naddle Forest, Hawes Water, 1981. Ivan Day.

Lecanora leptacina V.C. 96, Westerness: abundant on rocks associated with a large snow patch, flanks of Aonach Beag, 1090m, 27/475747, July 1981. This attractive species has black fruits on a thick yellowish-green thallus, it has only rarely been recorded in Britain. B. Fox and O.L. Gilbert.

Pertusaria xanthostoma V.C. 97, Westerness: occasional on dead heather stems lying on peat, Loch an Sgoir, 27/499748, 1981. W. Purvis.

Pilophorus strumaticus V.C. 76, Renfrew: on the sheltered face of a lava outcrop, near Kilmacolm, 1978. D. Mellor.

Placidiopsis custnanii Inner Hebrides, Colonsay: a member of a rich community on machair, growing with Solorina saccata, Squamarina crassa, Leptogium turgidum, Collema multipartitum and Opegrapha pulvinata, 1981. B.J. Coppins and F. Rose.

Pseudocyphellaria intricata. Inner Hebrides, Rhum: on a remarkable north facing block scree composed of mossy ultrabasic rocks, 17/348975, 1981. These boulders have many of the properties of tree trunks and appear to have formed a refuge for some of the epiphytes from the now vanished primary woodlands of Rhum. Also present are Pseudocyphellaria crocata, Lobaria laetevirens, Parmeliella jamesii, P. atlantica, Sticta, Pannaria, Nephroma, Gyalidiopsis, etc. O.L. Gilbert

Rinodina isidioides V.C. 69, Westmorland: on an old oak, Rydal Park, Nr. Ambleside, 1981, new to the vice-county. This major site for epiphytic lichens was discovered this year, so far 114 epiphytic lichens have been listed including Lecanora quercicola, Polybastia allobata and many old woodland indicators.

F. Rose and Ivan Day.

Trapeliopsis (Lecidea) glaucolepidea V.C. 67, South Northumberland: on vertical, shaded side of drainage ditch in forestry plantation, Paddaburn Moor, Spadeadam Wastes, fertile, 1981. Also at a few other sites in the area, so this species may be not uncommon in the planted coniferous forest of the Borders. The material is so well developed it could be mistaken for Cladonia squamules.

Ivan Day.

Umbilicaria crustulosa V.C. 69, 70. Lake District. Since Martindale discovered this lichen in the Langdale Valley in 1889 news of further British localities has been eagerly awaited. It is not widely known that additional records were made in 1962 by R.J. Birkett and D.A. Ratcliffe from Cam Spout crag on the east side of Scafell and Horn Crag, Easdale (material in Carlisle Museum). This summer it has been found at several further localities in the Lake District mostly below 450m on Borrowdale Volcanic rocks, e.g. Haystacks, Buttermere; north-east side of Great Gable and in the Grasmere area. Ivan Day.

Usnea articulata V.C. 28, West Norfolk: covering a few square metres on stabilised sand dunes at Burnham Overy in Holkham National Nature Reserve. It also occurs about 8km away in a similar habitat, these are the only modern records from the east of England. Both P.W. Lambley 1980 and 1976.

Verrucaria melaenella (V. psammophila) V.C. 63, South-West Yorkshire: overgrowing soil and moss on top of roadside wall constructed of Magnesian limestone, Womersley village, near Pontefract, 42/531.190, 1981. This is the sixth British record, all the others are from very high quality sites such as Breckland, ancient chalk downland, sand dunes or medieval lead mines.

O.L. Gilbert.

Miscellaneous

Correction required to key in Lichenologist 13(2) June 1980

The third couplet of the key on page 128 is erroneous. The clause leading to couplet 4 should lead to 5, and that leading to 5 should lead to couplet 4. L. T. Ellis.

Experimental Biology of Lichens and Mosses

The Society of Experimental Biology is holding a meeting based on Trinity College, Dublin, 6 - 8 July 1982. As part of the meeting there will be a session on the experimental biology of mosses and lichens. The organiser of the session Professor D.H.S. Richardson is seeking contributed papers; those wishing to take part should write directly to him at the School of Botany, Trinity College, Dublin 2, Ireland, providing a title and 50 word abstract.

Treasurer's change of address

Please note that Mr.S.N. Tallowin our treasurer has moved, his new address is Lakeham Farm, Higher Ashton, Nr.Exeter,Devon, EX6 7RB.

For sale

Lichen plates with text from the first edition of English Botany (1790 - 1814) and Supplement (1831) by Sowerby and Smith. Unbound but arranged in folders according to families and genera. The lichen plates were hand coloured during the peak period of botanical illustration, and many are the only coloured illustrations

ever issued of these lichens. The paintings are by one of the foremost botanical artists, and over 300 taxa are illustrated. Offers are requested for the set. Also complete set of The Lichenologist consisting of volumes 1 to 10 bound in seven volumes, with the rest of the parts unbound. £100 the set, including postage. John Gilbert, "Riverside", Wansford, Peterborough, PE8 6JB.

Volume 12 (unbound) of The Lichenologist, the three parts in mint condition, £12 post free. F. Ambrose, 11,Archer Close, Maidenhead, Berks.

Lichen courses at field studies centres

At the time of going to press the Field Studies Council has not issued its programmes for 1982 but information is to hand of the following courses:
Juniper Hall, Dorking Surrey.11 - 13 June 1982. Leader F.S.Dobson.£39
Slapton Ley Field Centre, Slapton, S. Devon. 4 - 11 August 1982
Leader D.L. Hawksworth and F.S. Dobson. Cost £97.
Orielton Field Centre, Pembroke, 25 August - 1 September 1982.
Leader F.S. Dobson. Cost £96.

New members

The following members joined the Society between May and October 1981:

Dr.P.Barclay-Estrup, Department of Biology, Lakehead University, THUNDER BAY, Ontario, P7B SE1, Canada.

Miss M.J. Burnhill, 23 Wilberforce Road, Brighstone, NEWPORT, Isle of Wight, PO30 4BD.

Mr.P.Chivers, 27 Church Hill, HONITON, Devon, EX14 8DB.

Dr. Joan B. Dixon, 40 New Road, WARE, Hertfordshire, SG12 7BY.

Miss C. Douglas, 49 Charleston Road, Rathmines, DUBLIN 6, Irish Republic.

Mr.E.Elliott, Watergate Cottage, Wardour Lane, Donhead St.Andrew, SHAFTESBURY, Dorset, SP7 9EQ.

Dr. A.R. Flood, 99 Harley Street, LONDON, W1N 1DF.

Mr.J. Gardner, P.O. Box 128, WENTWORTHVILLE, New South Wales 2145, Australia.

Dr. Barbara P. Hilton, 12 Highfield Way, RICKMANSWORTH, Hertfordshire, WD3 2PR.

Mrs. P. A. Ivimey-Cook, 12A Portland Avenue, EXMOUTH, Devon, EX8 2BS.

Miss A. S. Kiang, 16 Deerpark Lawn, CASTLEKNOCK, Co.Dublin, Irish Republic.

Dr. Marie A. Letrouit, Lab.Cryptogamie Université, Bot. C2 et F, Rue P. et M. Curie, 75230 PARIS 5, France.

Mr. J. Margetts, 57 Park Road, REDRUTH, Cornwall.

Professor D. S. Silvestre, Departamento de Botanica, Facultad de Farmacia, Universidad Sevilla, SEVILLA, Spain.

Mr. D.H. Smith, Westland, Westfields, KIRKBYMOORSIDE, Yorks YO6 6AG.

Dr. N.K. G. Smith, 381 Gledhow Lane, LEEDS, West Yorkshire, LS7 4NQ.

Mrs. J. Todd, 331 Bonnyton Drive, Eaglesham, GLASGOW, GL76 ONH

Literature on lichens - 37

Lichenologist 13(2) was published on 9 July 1981.

BARKHAM, J. P., GEAR, S., HAWKSWORTH, D. L. & MESSENGER, K. G. 1981. Foula, Shetland. Volume 2. The Flora of Foula. Brathay Centre, Ambleside. [Includes list of 87 lichens.]

BRODO, I. M. 1981. Lichens of the Ottawa region. Syllogeus 29. [Keys.]

CASSELMAN, K. L. 1980. Craft of the Dyer: Colour from Plants and Lichens of the Northeast. University of Toronto Press, Toronto. [Guide to dyeing. £16.50. The U.K. distributor is Trevor Brown, Ely House, Dover Street, London W1X 4HQ (01-499 4688).]

CLAUZADE, G. & ROUX, C. 1980. Localité type des taxons lichéniques nouveaux décrits par Asta, Clauzade et Roux entre 1973 et 1977. Bull. Soc. linn. Provence 32: 47 - 55. [27 taxa.]

COPPINS, B. J. & GILBERT, O. L. 1981. Field meeting near Penrith, Cumbria. Lichenologist 13: 191 - 199. [Descriptive account, recording many lichens.]

CREVELD, M. C. 1981. Epilithic Lichen Communities in the Alpine Zone of Southern Norway. [Bibliotheca Lichenologica 17]. [Cramer, Vaduz.] [Detailed account; sociology with much revision of syntaxa, ecology, systematic notes, etc.]

CULBERSON, C. F., CULBERSON, W. L. & JOHNSON, A. 1981. A standardized TLC analysis of β-orcinol depsidones. Bryologist 84: 16 - 29.

ELLIS, L. T. 1981. A revision and review of Lemmopsis and some related species. Lichenologist 13: 123 - 139. [Taxonomic account. Three species are recognised in Lemmopsis. New combs: Lemmopsis pelodes (Körber ex B.Stein)L.T.Ellis, Porocyphus leptogiella (Nyl.)L.T.Ellis. On p. 128 the leads to 4 and 5 in the key should be transposed.]

ESSEEN, P.-A., ERICSON, L., LINDSTRÖM, H. & ZACKRISSON, O. 1981. Occurrence and ecology of Usnea longissima in central Sweden. Lichenologist 13: 177 - 190. [77% decline, mainly due to clear felling of forest stands.]

FILSON, R. B. 1981. A revision of the lichen genus Cladia Nyl. J. Hattori bot. Lab. 49: 1 - 75. [Monograph; seven species.]

FOLLMANN, G. & SANCHEZ- PINTO, L. 1981. Zur Kenntnis der Flechtenflora und Flechtenvegetation der Kanarischen Inseln. IV. Über einige Neufunde alpiner Makrolichenen. Philippia 4: 307 - 313. [Five taxa.]

GREEN, T. G. A., SNELGAR, W. P. & BROWN, D. H. 1981. Carbon dioxide exchange in lichens. Carbon dioxide exchange through the cyphellate lower cortex of Sticta latifrons Rich. New Phytol. 88: 421 - 426. [The results suggest that "cyphellae act as air pores."]

HALE, M. E. 1981. A revision of the lichen family Thelotremataceae in Sri Lanka. Bull. Br. Mus. nat. Hist. (Bot.) 8: 227 - 332. [Monograph of 110 species in three genera.]

HAWKSWORTH, D. L. 1981. The lichenicolous Coelomycetes. Bull. Br. Mus. nat. Hist. (Bot.) 9: 1 - 98. [Monograph of 42 species in 20 genera. Discussion of excluded species. In the key to the species of Lichenoconium (p. 33) the numbers were removed by the printers; these are (from top) 2, 5, 3, 4, 6.]

HAWKSWORTH, D. L. 1981. Lichenothelia, a new genus for the Microthelia aterrima group. Lichenologist 13: 141 - 153. [Taxonomic account. Two species are referred to Lichenothelia, both growing on rocks.]

HERTEL, H. 1980. Index Collectorum Lichenum Herbarii Monacensis. Ein Sammler-Verzeichnis des Flechtenherbars der Botanischen Staatssammlung München. Mitt. bot. StSamml. München. 16: 333 - 462. [Details of 1674 lichen collectors represented in the München herbarium.]

JAHNS, H. M. 1981. The genus Pilopherus. Mycotaxon 13: 289 - 330. [Monograph of 10 species.]

JAMES, P. W. & SYRATT, W. J. 1980. Lichen Studies around Sullom Voe. Shetland Oil Terminal Environmental Advisory Group, Sullom Voe. [Use of lichens as indicators of environmental change. Survey by species lists, quadrats, and photographic methods.]

KAUPPI, M. 1980. Fluorescence microscopy and microfluorometry for the examination of pollution damage in lichens. Annls bot. fenn. 17: 163 - 173. [Health of algal cells investigated by fluorescence. Advantages "lie in its sensitivity, its rapidity and the small amount of material required." Colour photographs.]

KELLY, D. L. 1981. Bryophytes and lichens. Ir. Nat. J. 20: 170. [Records of Microglaena sericea and Sticta canariensis from Co. Kerry.]

KELLY, D. L. 1981. The native forest vegetation of Killarney, south-west Ireland: an ecological account. J. Ecol. 69: 437 - 472. [Descriptive account, including epiphytic vegetation of Quercus, Taxus, and carr woods.]

KLAPPA, C. F. 1979. Lichen stromatolites: criterion for subaerial exposure and a mechanism for the formation of laminar calcretes (caliche). J. sedim. Petrol. 49: 387 - 400. ["Laminar calcretes ... are lichen stromatolites "which have "far reaching implications in terms of palaeoenvironmental reconstructions."]

KROG, H. & SWINSCOW, T. D. V. 1981. Parmelia subgenus Amphigymnia (lichens) in East Africa. Bull. Br. Mus. nat. Hist. (Bot.) 9: 143 - 231. [Taxonomic account of 72 species.]

LALLEMANT, R. & VAN HALUWYN, C. 1981. Effets des hydrocarbures sur les peuplements lichéniques marins et phénomènes de recolonisation. Amoco Cadiz. Conséquences d'une pollution accidentelle par les hydrocarbues: 405 - 413. Centre National pour l'Exploitation des Océans, Paris. [Effects of oil pollution from the wreck of the Amoco Cadiz on maritime lichens; photographs.]

LARSON, D. W. 1981. Differential wetting in some lichens and mosses: the role of morphology. Bryologist 84: 1 - 15. ["Rhizines play a major role in the water relations of some species, but not in all."]

LAUNDON, J. R. 1981. The species of Chrysothrix. Lichenologist 13: 101 - 121. [Monograph of four species: Chrysothrix candelaris (L.)Laundon, C. chlorina (Ach.)Laundon, C. chrysophthalma (P. James)P.James & Laundon, and C. pavonii (Fr.)Laundon. The yellow spp. of Lepraria and Temnospora are all referred to the genus. One chemotype may be of hybrid origin.]

LAUNDON, J. R. 1981. Proposal to emend Chrysothrix Mont., nom. cons., and add Pulveraria Ach., nom. rej. (Lichenes). Taxon 30: 663 - 664. [Proposal for retaining the name Chrysothrix.]

LINDQVIST, M. 1981. Lavflora. Fälthandbok över Sveriges vanligaste busk-och bladlavar. Fältbiologerna, Sollentuna, Sweden. [Identification book with keys and drawings.]

MATTHEWS, K. M. 1981. The use of lichens in a study of geothermal radon emissions in New Zealand. Envir. Poll. A, 24: 105 - 116. ["The 210Pb contents of lichens growing in the geothermal area, however, were not significantly higher than those of lichens in non-geothermal areas."]

MOXHAM, T. H. 1981. Growth rates of Xanthoria parietina and their relationship to substrate texture. Crypt. Bryol. Lichén. 2: 171 - 180. [Growth rate is influenced by the texture of the substrate.]

NIMIS, P. L. 1981. Epigaeous lichen synusiae in the Yukon Territory. Crypt. Bryol. Lichén. 2: 127 - 151. [Eight terricolous lichen communities are described, six of which are new. The close relationship with European communities is discussed.]

PEDERSEN, I. 1980. Epiphytic lichen vegetation in an old oak wood, Kaas Skov. Bot. Tidsskr. 75: 105 - 120. [107 species, some rare in Denmark.]

POELT, J. & HAFELLNER, J. 1980. Apatoplaca - Genus Novum Teloschistacearum (Lichenes). Mitt. bot. StSamml. München. 16: 503 - 528. [Includes key and comments on the genera in the Teloschistaceae.]

POELT, J. & VĚZDA, A. 1981. Bestimmungsschlüssel europäischer Flechten. Ergänzungsheft II. [Bibliotheca Lichenologica 16]. Cramer, Vaduz. [Includes keys to genera, as well as keys to species occurring in 65 genera. Bagliettoa is separated from Verrucaria, Catillaria atropurpurea and C. pulverea are placed in Catinaria, and Tremolecia jurana becomes Melanolecia jurana (Schaerer)Hertel. DM80 - about £20.]

RICHARDSON, D. H. S. & NIEBOER, E. 1981. Lichens and pollution monitoring. Endeavour II, 5: 127 - 133. [Review.]

ROSE, F. & JAMES, P. W. 1981. Report on the Lichen Flora and Vegetation of Lowland Areas of the Cowal Peninsula 21 - 30 June 1977. Nature Conservancy Council, London. [Duplicated report.]

SCANNELL, M. J. P. 1981. Catillaria bouteillei (Desmaz.)Zahlb. on Myrtus apiculata in West Cork (H3). Ir. Nat. J. 20: 254.

SEAWARD, M. R. D. 1981. Lichen flora of the West Yorkshire conurbation - supplement II (1978 - 1980). Naturalist, Hull 106: 89 - 95. [Additional records, plus distribution maps and a graph.]

SEAWARD, M. R. D. 1981. Lichenology. Trans. Lincs. Nat. Un. 20: 61 - 63. [Additional lichen records for Lincolnshire.]

THOMSON, J. W. 1979. Lichens of the Alaskan Arctic Slope. University of Toronto Press, Toronto. [Flora, including keys.]

VOBIS, G. & HAWKSWORTH, D. L. 1981. Conidial lichen-forming fungi. Biology of Conidial Fungi 1: 245 - 273. Academic Press, London. [Review; division into types. There is "little doubt that some function as spermatia. Some crustose lichens commonly form pycnidial conidiomata but so rarely produce ascomata that their conidia must be a major method of dispersal."]

WATT, A. S. 1981. A comparison of grazed and ungrazed Grassland A in East Anglian Breckland. J. Ecol. 69: 499 - 508. [Includes reference to the highly specialised lichen flora.]

WILSON, M. J., JONES, D. & McHARDY, W. J. 1981. The weathering of serpentinite by Lecanora atra. Lichenologist 13: 167 - 176. [Weathering effects attributed to oxalic acid secreted by the mycobiont.]

J. R. LAUNDON

BRITISH LICHEN SOCIETY

EXPENDITURE & INCOME ACCOUNT FOR THE YEAR ENDING 31 DECEMBER 1980

1979 £	Expenditure		1980 £	1979 £	Income		1980 £
	Academic Press:			3313	Members' Subscriptions		3057
2984	The Lichenologist		3362	1	Donations		28
	Printing Checklist in				Royalties and sales on :-		
	The Lichenologist	1250		284	Progress & Problems		121
	Less Royal Soc. Grant	600	650	1388	Dr. U K Duncan's book		127
	Subscriptions paid to:			24	AL Smith's book		30
24	Revue Bryol. et Lich	20		-	Herbarium catalogue		5
9	American Bryologist	8		2	Checklist - Gross profit		83
10	Co. En. Co.	4		4	Sundry booklets		3
8	Intern. Mycol Assoc.	-		4	Reading Circle (net)		10
8	Biological Council	9	41		Interest received:		
419	The Bulletin (less receipts)		301	103	Welwyn Hatfield	105	
28	Stationery & Typing		67	46	Refund of Tax	45	150
85	Postage		83	481	(Girobank		20
10	Insurance		10		(Banks		856
-	Donation - Royal Society		25		Excess of expenditure		
-	Contribution - French				over income		113
	Field Meeting		50	143	Stechert MacMillan		-
41	Sundry small payments		14				
2167	Excess of income over						
	expenditure		-				
£5793			£4603	£5793			£4603

BALANCE SHEET AS AT 31 DECEMBER 1980

Liabilities		£	Assets	£
Subscriptions paid in				
advance		253	Cash at Banks:	
World Wildlife Fund		10	National Westminster	4516
Royal Society Loan:			Canadian Imperial	389
Printing Checklist		600	Girobank	246
General Fund at			Stock - Pd	64
31.12.79	5413			
Less deficit for			Stock of Checklists	948
year	113	5300		
		£6163		£6163

Audited and in my opinion a correct record of the Accounts of the British Lichen Society.

R.T. Ashby Hon. Auditor

6th July 1981

The Loan from the Royal Society is for a term of 3 years and is interest free.

S.N. Tallowin Hon. Treasurer

30th June 1981

LICHENICOLOUS AGARICS

During the last twenty-five years it has become apparent that certain agarics are consistently and intimately connected with lichens. Although one species so connected is placed in the genus Myxomphalina the rest all belong to the genus Omphalina. Species of both genera may be recognised by their small size (generally less than 20 mm broad), decurrent to arcuate - decurrent gills running down the stem-apex (see sketch), white spore-print and lack of cystidia on the gill faces and margins. There is some doubt as to whether Myxomphalina is truly a lichen as it also may be found apparently unconnected to Botrydina in plantations especially after top-dressing with nitrogenous fertilisers has been applied. Omphalina cupulatoides may likewise be more of a necrophilic agaric than one forming a true lichen relationship; further field-work will show whether it is restricted to growing on Peltigera.

The key offered below is based on both microscopic and macroscopic characters and, although field-data are added, it may have to be modified as more collections become available. Thus, some continental authors record O. ericetorum with Coriscium whilst in the British Isles it is always with Botrydina! Equally O. luteovitellina is found commonly in the Scottish mountains with Botrydina whereas the same agaric is found with Coriscium in the Andes. O. pseudoandrosacea has been added to the list of lichenicolous agarics on the basis of my own work; it is certainly widespread attached to Botrydina colonies, particularly in the north in Sphagnum beds. This species was formerly synonimised with O.ericetorum but can be separated by the key characters below. There is, it is true, some disagreement as to the true identity of O. pseudoandrosacea but it is taken here in the sense of Quélet, and of Jacob Lange in his Flora Agaricina Danica. Perhaps the revised treatment of the genus proposed by P.D. Orton will resolve this knotty problem.

Dried material of all agarics is generally difficult to deal with so in the field the fresh colours of the fruit-body should be noted; particular attention should be paid to whether there is a dark zone at the stem-apex. Once home, cut off the cap from the stem and place it gills down on a slide in a small tin

box or similar container and leave it for 8 - 10 hours. A spore print will be obtained during this period and be a source of spores for examination under the high power of the microscope; it can also be utilised to determine whether the spores are amyloid (pale blue-black) or not (at most yellow) by loading the print with a drop of Melzers' iodine reagent and viewing the slide over a piece of white paper. Stem pubesence can be seen with the aid of a X10 lens or by using the detached stems mentioned above, placing it when fresh under the low power of a microscope and focusing up and down on the slide.

In order to determine whether the basidia are 2 or 4 spored a vertical sliver of fresh fruiting body with gills attached should be cut and mounted without liquid on a slide. With the low power of a microscope the gill faces should be scanned as the basidia when their attached spores will protrude from the gill and the latter can be counted. If failing to see the basidia and spores the same section can be mounted under a coverslip in a drop of water and examined under a higher objective. Clamp connections must be sought in the hyphae of the stem-cortex by teasing out a small piece of tissue in water and examining under high power.

Equipped with this information any of our British lichenicolous agarics may be determined.

Key to British lichenicolous agarics

1. Fruit-body attached to necrotic patches or dying parts of Peltigera spp.; cap milky-coffee, hazel or pale snuff-brown drying cream or clay-colour; gills vinaceous buff or clay colour often forked and sometimes veined on sides. Spores (7-) 8 - 11 x (4-) 4.5 - 5 µm. Rather uncommon, although apparently widespread in Scotland.

O.cupulatoides P.D. Orton

Fruit-body not associated with dying parts of Peltigera spp. 2

2. Fruit-body attached to or associated with Coriscium viride; cap and gills cream to buff; stem pale lilaceous, soon becoming cream although retaining pink-flush at apex. Spores 8.5-10 x 4.5-5 µm. Not uncommon in mountainous areas in the west and particularly in the north.

O. hudsoniana (Jen.) Bigelow.

Fruit-body associated with Botrydina vulgaris; stipe lacking lilaceous or pink coloration. 3.

3. Entire fruit-body bright lemon-chrome yellow; cap rarely above 10 mm broad and stem often short; gills thick often contorted. Spores 6.5-9.5 x 3.5-4.5 µm. Not uncommon in mountainous areas in west and north Scotland.

O. luteovitellina (Pilat & Nannf.) M. Lange

Fruit-body, cream, buff, fuscous brown, clay-coloured or grey never bright yellow. 4.

4. At the site of bonfires or on enriched soil in woods on acid soils, especially conifer plantations. Cap usually dark (fuscous to fuliginous brown to sepia), some pale forms known. Spores 5-6 x 4 µm, becoming pale blue-black in Melzer's reagent (amyloid). Widespread although not common northwards.

Myxomphalina maura (Fr.)Hora

Ecology and appearance not as above. Spores larger and more ellipsoid; unchanged in Melzer's reagent or at most faintly yellow (non-amyloid). 5.

5. Fruit-body very pale, almost entirely ivory, drying cream; on Sphagnum, less frequently on bare soil and then in wet conditions and amongst moss. Spores 8-9.5 (-10) x 4.5 - 6 µm; basidia 2 or 4-spored. Widespread in west and north Scotland.

O.pseudoandrosacea (Bull. ex St.Amans.) Moser s.Quél.

Fruit-body more pigmented and rarely on Sphagnum usually on peaty soil, or moss covered stumps or wood, or in moss-cushions. 6.

6. Cap sepia to grey or grey-brown; stem pubescent, concolorous or paler, gills white contrasting markedly with cap and stem. Spores 7-8 x 6-7 µm; basidia 2-spored. On tracks, walls, etc., widespread throughout British Isles although often overlooked. O. velutina (Quél.) Quél.

Cap and stem paler or stem entirely smooth; basidia 4-spored or if 2-spored spores larger and fruit-body paler. 7.

7. Stem yellowish brown except for purple date or date-brown apex and gills pale coloured; cap yellowish brown often with reddish brown centre and striae, smooth. Spores 7-8 x 6-7 µm; basidia 4-spored; lacking clamp-connections. Common throughout British Isles in grassland, moorland or woodland communities, perhaps not always lichenised.
O.ericetorum (Fr. ex Fr.) M. Lange

Stem concolorous with cap; gills fuscous; cap grey with small, whitish fibrils, which give it a velvety appearance, only minutely striate when old or water-logged. Spores 10-13 (-15) x 4.5-6 µm; basidia 2-spored; clamp connections present. Rare, although probably overlooked.
O. griseopallida (Desm.) Quél.

ROY WATLING
Royal Botanic Garden,
Edinburgh,
EH3 5LR.

(Roy Watling is willing to help beginners name their specimens provided they are supported by a spore print and a note on the colour of the fruit-body when fresh. - Ed.)

Publications for sale

Orders to: Mr.P.W. Lambley, British Lichen Society, c/o Castle Museum, Norwich, NR1 3JU.

	Price (post free)
Bulletin 1-10 (1958-1963) Photocopy	£0.30 * each
11-18 (1963-1966) Photocopy	£0.50 each
35 (1974)	£0.50
38 (1976)	£0.50
39 (1976)	£0.50
40 (1977)	£0.50
41 (1977)	£0.50
42 (1978)	£0.50
44 (1979)	£0.50
45 (1979)	£0.50
46 incl.supplement (1980)	£0.75
47 (1980)	£0.50
48 (1981)	£1.00
49 (1981)	£1.00
Literature Guide by Hawksworth (1970)	£0.50
Conservation by Gilbert (1975)	£0.50
A revised guide to microchemical techniques for the identification of lichen products by Walker and James (1980)	£0.50
Check-list of British Lichen-forming, Lichenicolous and Allied Fungi by Hawksworth, James and Coppins (1980)	£4.00*

* Price of Bulletin to non-members is double the listed price.

* Price of Checklist to non-members is £6 per copy.

Cheques/PO payable to the British Lichen Society.
Remittance must accompany order (note all items post free).

Note: Back numbers of The Lichenologist are obtainable from Academic Press, 24 Oval Road, London, NW1 7DX. Members must state that they belong to the Society, and are therefore entitled to a discount.

CONTENTS

BULLETIN 49. Issued by the British Lichen Society, c/o Dept. of Botany, British Museum, (Natural History), Cromwell Road, London, SW7 5BD (Tel. 01-589-6323 ext.552). Edited by O.L. Gilbert, Dept. Landscape Architecture, The University, Sheffield, S10 2TN. who is author of all unsigned articles, except Grapevine. The views of contributors are not necessarily those held by the British Lichen Society.

Published by Tradeprint (Cromworth Ltd.) 515, Abbeydale Road, Sheffield, S7 1FU.