

**BRITISH LICHEN SOCIETY  
BULLETIN**  
**No. 75 Winter 1994**



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

## FORTHCOMING BLs MEETINGS

ANGLESEY - Coastal Survey

Leader: Trevor Duke

9-13 June 1995

PEMBROKESHIRE (ORIELTON) -*Cladonia* Workshop

Leader: Peter James

30 August - 6 September 1995

SURREY (NONSUCH PARK)

Leader: Frank Dobson

8 January 1995

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### 1995 MEMBERSHIP AND SUBSCRIPTION RATES

Annual rates except where indicated

(Dollar rates are two times the Sterling Rate except where indicated)

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for institutions only .....

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institutions rate £160.00  
overseas .....

\$280.00

**Renewal membership subscriptions** by Sterling cheque, payable to The British Lichen Society, drawn on a UK Bank or on a Bank with a UK Branch or Agent should be sent to Mr J M Gray, Assistant Treasurer, British Lichen Society, Myrtle House, Church Lane, Kingston St. Mary, Taunton, Somerset, TA2 8HR, UK (Tel. 0823 451636).

**Dollar renewal membership Subscriptions** should be sent to Dr J W Sheard, Department of Biology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

**Overseas members** may find it most convenient to pay subscriptions by GIRO (Girobank, Lyndon House, 62 Hagley Road, Birmingham, B16 8PE, UK): the British Lichen Society Giro Number is 24 161 4007

**Applications for membership** should be made to The Secretary, The British Lichen Society, c/o The Natural History Museum, Cromwell Road, London SW7 5BD.

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**SUBMISSION DEADLINE - 24 March 1995 (see page 50)**

*Cover artwork by Claire Dalby*

## PHOTOPROTECTION MECHANISMS IN LICHENS AGAINST UV RADIATION

Analysis of the recent literature on long-term research projects in the Antarctic reveals an increasing interest in processes leading to environmental change. Because of their simplicity, Antarctic ecosystems are ideal for studies of ecological principles. With the data obtained, scientists expect to detect patterns which may indicate the way environmental changes affect ecosystem function; it has been suggested that these models will constitute a key to the understanding of what is happening elsewhere on our planet.

One of the most significant environmental changes is the increase in ultraviolet radiation (UV) due to the depletion of stratospheric ozone. The most affected continent is Antarctica. In the stratospheric polar clouds in winter, chlorine from CFCs is deposited as ClONO<sub>2</sub> and HCl. With spring temperature increases these compounds release Cl<sub>2</sub> which then reacts with ozone photochemically (Toon and Turco, 1991). The total thickness of the ozone layer was first measured in Switzerland in 1926. By the 1980s the depth of the October stratospheric ozone column had decreased from the 1926 value of 250 - 325 DU (Dobson Units) to 175 - 125 DU, and its all-time minimum value of 108 DU was reached in 1991 (WMO, 1991). It is worth noting that the stratospheric ozone reductions at the Antarctic have occurred in very short periods of time (several decades). However, the overall impact of the high UV radiation levels in Antarctic ecosystems is not yet known. Declines in primary productivity, changes in community structure, and consequent alterations in trophic dynamics, and shifts in the balance of the natural ecosystems are among the expected effects of this global change (Karentz, Bosch & Dunlap, 1992).

Living organisms have developed strategies to minimise damage induced by UV radiation. In general terms these are expressed in (1) the organisation and movement of organelles to reduce the absorptive area or move the organelles out of the radiation area, (2) synthesis of screening compounds which absorb and dissipate the UV radiation as fluorescence or heat, (3) synthesis of accessory pigments which can use the UV radiation in photosynthesis or in other metabolic processes, (4) synthesis of antioxidant enzymes or accessory pigments to protect cells from active forms of oxygen, and (5) mechanisms to repair the damage to nucleic acids induced by UV radiation in nucleic acids (Holm-Hansen, Lubin & Helbling, 1993).

Many Antarctic species have some degree of natural protection from UV

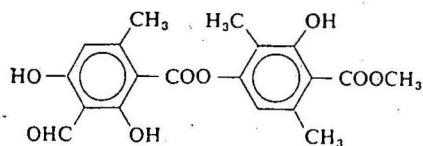
exposure. Marine invertebrates, micro-algae, and other phytoplankton contain mycosporine-like amino acids (MAA), compounds which strongly absorb UV radiation and can act as natural sunscreens blocking UV rays before they reach critical target areas of cells and tissues. Among others, porphyra-334 (λ max 334 nm), shinorine (λ max 334 nm), mycosporine-glycine, valine (λ max 336 nm), and palythine (λ max 320 nm) have been isolated. Some algae synthesise diadinoxanthine, a carotenoid photoprotector more abundant in species of shallow than deeper water (Bidigare, Ondrussek & Kang, 1992). Mosses from the Antarctic synthesise flavonoids. The concentrations of these compounds in mosses collected from the Ross Sea area between 1965 and 1989 are correlated with ozone levels measured during the same period. It would be interesting to measure the flavonoid concentrations in herbarium specimens since these might indicate historical levels of ozone over Antarctica (Markham *et al.*, 1990).

It is well known that lichens produce a diversity of secondary products with a phenolic structure, including depsides, depsidones, diaryl-ethers, dibenzophurans and usnic acids. Some of these compounds are efficient UV absorbers and accumulate in the cortex of the thallus where they absorb a fraction of the incident solar radiation thus protecting the photosynthetic membranes in the photobiont (Lawrey, 1986). Rao and Le Blanc (1965) noted the coincidence between the absorption spectrum of chlorophyll and the emission spectrum of atranorin and suggested a role for this and other related depsides as accessory pigments in photosynthesis.

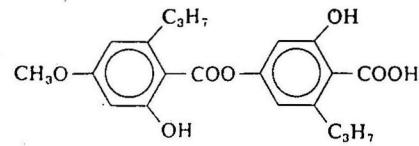
In the 1980s, we began a series of experiments to test these ideas. As the experimental evidence for the photophysical and photochemical properties of lichen products was limited, we decided to study these properties in a group of phenols containing a carbonyl-ortho-hydroxyl chromophore unit that characterises solar filters: this was atranorin, diffractaic acid, divaricatic acid, pannarin, 1'-chloropannarin and (+)-usnic acid (Fig 1). At the same time, we attempted to evaluate the filtering and antioxidant properties of these compounds both *in vitro* and *in vivo*.

These metabolites strongly absorb in both UV-A and UV-B and exhibit chemical and photochemical stability. Phenols, with the exception of usnic acid, fluoresce between 410 and 490 nm at basic pH and between 435 and 485 nm in solid state, ie within the zone in which chlorophylls absorb. Fluorescence quantum yields are of the order 10<sup>-3</sup> which is probably too low to be efficient; this apparent inefficiency would be counter-balanced by high concentrations in the thallus (usually greater than 5% thallus dry weight). Scanning electron microscopy has revealed that photoprotector compounds

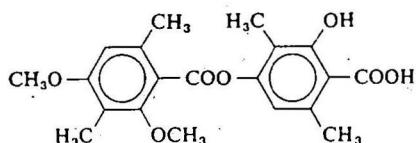
are deposited as crystals on the external surface of the fungal hyphae and, recent reports suggest, also on the external surface of the photobiont. The latter is a very significant finding because the emission of energy must be produced close to the photosynthetic centre thus shortening the distance between the origin of the emission and the photosynthetic pigments which is necessary in order for the energy to be trapped by chlorophylls. Due to their chemical and photochemical stability, lichen compounds would act as antennae, absorbing and releasing energy in a continuous process (Hidalgo *et al*, 1992; Quilhot *et al*, 1991a, 1992).



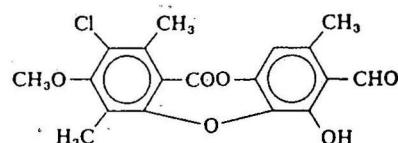
Atranorin



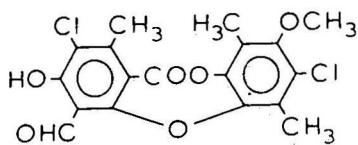
Divaricatic acid



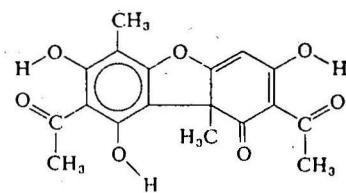
Diffractaic acid



Pannarin



1'-Chloropannarin



Usnic acid

Fig 1. Lichen metabolites

We have measured the capacity for photoprotection against UV-A by measuring the intensity of erythema in guinea pig's skin. The intensity induced by 1'-chloropannarin is similar to PABA film (a solar filter used as a reference); the other phenols did not show a significant degree of protection. In general these results agree with spectroscopic data. Although atranorin and pannarin have a maximum absorption in the UV-A, they have low extinction coefficients. The capacity for photoprotection against

UV-B was evaluated by determining the sun protection factor (SPF) of treated and non-treated skin. The fluorophors under assay showed higher SPF values than homosalate (used as a reference) both *in vitro* and *in vivo* with the exception of 1'-chloropannarin which had a lower value *in vitro*. Thus 1'-chloropannarin protects against both UV-A and UV-B radiation.

In addition, pannarin and 1'-chloropannarin inhibited the UV-A induced binding of 8-(methyl-<sup>3</sup>H)-methoxysoralen [8-MOP (3H)] to the human serum albumin by 75% and 85% respectively. These results suggest the existence of a photoprotection mechanism against radiation effects on dermal proteins through the trapping of free radicals and singlet oxygen (Fernández *et al*, 1993). The antioxidant capacities of atranorin, divaricatic acid, pannarin, and 1'-chloropannarin were evaluated by employing the autoxidation of rat brain homogenate and β-carotene in a linoleic acid suspension as a model system. The results obtained revealed that chlorinated depsidones are more efficient antioxidants than depsides. The protecting capacity of 1'-chloropannarin was similar to propyl-gallate, the reference antioxidant (Hidalgo *et al*, 1994).

Considering the UV radiation increase over the Antarctic, we suggest that lichens are probably protected by metabolites that selectively filter UV radiation. Furthermore, if their fluorescence emissions are trapped by chlorophylls then their productivity would increase. Because of their antioxidant properties, these same metabolites would protect the photobiont from photo-oxidizing processes.

A study of the temporal variation of usnic acid in an Antarctic species, *Usnea aurantiaco-atra* collected monthly for a period of three years (1987, 1988, 1989) on Greenwich Island (South Shetlands Islands) revealed that the metabolite accumulation rate decreased significantly from June to December. This variation was attributed to the mobilisation and catabolism of usnic acid to supply energetic deficits due to the winter depression of photosynthetic activity (Quilhot *et al*, 1991b) but it may also be a consequence of a greater metabolite synthesis under an increased summer UV radiation.

In 1992, Galloway suggested that lichen chemical signatures are a potential tool for monitoring environmental changes occurring at high altitude and in high latitudes in the Southern Hemisphere. Our results to date on the photoprotecting capacity of lichen phenolics are consistent with this view.

W Quilhot, E Fernández, and M E Hidalgo,  
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University of Valparaíso, Valparaíso, Chile

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## **OFFICERS' REPORTS**

### **Bulletin Editor's Report**

Due to my taking study leave between November 1994 and September 1995, I have had to make alternative arrangements for editing the next issue of the *Bulletin* (76, Summer 1995). Dr John-Henry Looney has kindly agreed to take on this job. Copy for *Bulletin* 76 should be addressed to me and sent to the Department of Life Science as usual. Exactly the same arrangements for typing and printing the *Bulletin* will be in place.

Peter Crittenden

### **Conservation Officer's report**

By the time of the AGM the Committee will have had three meetings this year. It was agreed that priorities for the year would include (1) improving communications within the BLS, (2) encouraging joint projects with other societies, (3) reaching out to national and international bodies, and (4) to produce written guides to help lichen conservation. Progress made towards these ends is as follows.

(1) As there are currently 32 members of the Conservation Committee, the meetings have proved to be rather large assemblies, but separating agenda items will reduce the need for all members to attend. Briefly, the spring committee meetings will be devoted to lichen-species concerns, and provided it is accessible, will be held at the spring field meeting venue, thus attracting many of our active fieldworkers. At the autumn meeting in London, we will discuss issues concerning the integration of lichen conservation with wider concerns such as official directives, national policies, etc. The winter meeting, again in London, will review progress and set targets for the coming year.

A major initiative this year was the production of a bulletin entitled 'Conservation News'. It was hoped to produce this monthly eventually, but so far enough information has been received to give a double-sided issue about every 3 months. This briefly informs members of current issues and alerts them towards action which could be taken in advance of committee meetings. Encouraged by its success, we are considering setting up a network of conservation-minded lichenologists who would be prepared to act on behalf of the BLS near to their home base. This would ease pressure on the Conservation Officer, originating from enquiries from Local Authorities and County Trusts, etc. If any members are willing to help,

please contact me. I am hoping that, after suitable consultation, 'Conservation News' could be issued to the membership generally for the price of production and postage (around 30p per issue).

(2) Work has continued on site recording in churchyards, woodlands and maritime habitats. The churchyard subcommittee has a life of its own and its work has been excellently represented elsewhere in the *Bulletin*. The Woodland Working Party has been evaluating sites in the critically important counties of Cornwall, Devon, Somerset and Dorset. A preliminary report was submitted to JNCC and it is expected that nearly 1000 sites will be listed and evaluated in the final report. The maritime database continues to gestate inside a computer but can meet enquiries for certain areas of the country.

(3) One meeting was almost wholly devoted to issues of lichen conservation computer databases. Several societies and organisations have been contacted and their systems evaluated. It was agreed that at present the work of the committee is severely hampered by the lack of a modern computer site database. Also, while we virtually led the field in the early 1980s, other botanical societies are now well in advance of the BLS in computerised site recording, and have greatly improved their level of service and credibility. We are now appraising various solutions, and although it is too early to recommend any one, it is hoped that the newly formed BLS data-subcommittee will be able to evaluate our conservation needs and accommodate them within an overall BLS data strategy.

(4) The Committee is updating the leaflet entitled *Lichens and Dyeing* and preparing a new one entitled *Lichens on Man-made Substrata*. These are major subjects of enquiry from the public, particularly as the usefulness of lichens for dyeing cloth has been extensively publicised recently, most notably in *BSBI News*.

Finally, throughout the year the lichen conservation effort in Great Britain has depended almost entirely on the alertness and energy of BLS members. I am always grateful for any advice, opinions, "tip-offs", etc, that you can offer and which I can pass on. For services already rendered, I should like to thank all members of the Conservation Committee and my numerous correspondents in the society for their contributions throughout the year.

Anthony Fletcher

## **Curator's Report**

As usual, the BLS herbarium has been used by only a few members during the year. It is probably most useful to members who have recently begun to study lichens and who find that access to accurately named material is difficult. Therefore, requests from new members of the Society are particularly welcome.

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

Although the larger foliose taxa are well represented, additional specimens of recently recognised crustose species would be welcome. Finally, if any member can suggest ways in which the service might be improved, I would be pleased to hear from them.

Richard Brinklow

## **Treasurer's Report**

### **Report on the accounts for the year from 1.7.93 to 30.6.94**

The Society has had another successful year financially showing an excess of income over expenditure of £7,303 but it should be noted that over 70% of this sum came from sales of the *Flora*. We have now reprinted the *Flora* obtaining 934 copies for £8,873. It is to be expected that future sales of this book will be slower now that the main market of existing members has been largely satisfied.

The increased expenditure in 1993/4 is mainly due to the higher cost of *The Lichenologist*. This was caused by a 6.5% increase in production costs and the editorial and overhead charges from the publisher for an additional 58 pages. The increase in the membership is also reflected here, as for each member receiving *The Lichenologist*, we are charged £22 by the publisher. However, the cost of the *Bulletin* is lower, as in the previous year we printed the checklist as a supplement. Bank charges have risen again but we have now managed to negotiate better terms with the National Westminster Bank which should save us about £100 per annum.

On the income side of the accounts the general fall in interest rates is shown by the reduction in the sum we received. The trend for falling rates of interest now seems to have been reversed and, hopefully, this will be reflected in next year's figures. The small sum shown for profit on sales is due to the policy of the Society to make only sufficient on these sales to cover expenses and allow a small percentage for breakages and other damage.

The balance sheet shows a healthy situation with reserves of over £90,000 at the year end. Since that date we are committed to spending over £9,000 on reprinting the *Flora* and the checklist. These books should, over a period, produce a profit for the Society. The expenditure on publications is expected to continue in the coming year with leaflets, a series of mapping cards, and the first part of the *Atlas* already planned.

I would like to give my sincere thanks to John Sheard for looking after the transatlantic members, to Jeremy Gray for coping so efficiently with the office of Assistant Treasurer and to Mr D E W Oliver for auditing of the accounts.

Frank Dobson

#### AUDITOR'S REPORT TO THE BRITISH LICHEN SOCIETY

I have been unable to examine the Register of Members or confirm it is complete, neither have I checked the stock. However, in the context of the Society's turnover the amounts involved are not material.

Subject to the foregoing, in my opinion, the attached accounts prepared under the historical cost convention and the notes thereon give a fair view of the state of affairs of the society and the income and expenditure of the Society for the year ended on 30 June 1994.

D E W Oliver, FCIB, ATII, APMI

#### *Notes to the Accounts*

1. Manager's remuneration: no officer of the Society received remuneration and none is due in the twelve months covered by these accounts.
2. Status: the Society is a Registered Charity, number 228850.

**BRITISH LICHEN SOCIETY**  
**EXPENDITURE & INCOME FOR THE YEAR 1/7/93 TO 30/6/94**

1993	EXPENDITURE	1/7/93 to 30/6/94		1993	INCOME	1/7/93 to 30/6/94	
10	Printing and distributing				Subscriptions	10,923	
	The Lichenologist	10,628			Add 1/5 life membership	381	
	Less profit sharing	(2,579)	8,099		Less refunds	(159)	
	Printing and distributing			10,259	Paid in advance	(417)	10,728
	The Bulletin	2,888		5,114	Interest received		3,934
	Less receipts	(341)	2,547	640	Donations		160
	Secretarial and committee expenses		815		Flora Sales and stock at cost	7737	
	Map & conservation publications	696		(1,546)	Costs, postage etc.	(2,494)	5,243
	Bank charges	402		225	Profit on sales of stock		42
	A.G.M. and buffet	481		183	Profit/Loss on exchange rate		(82)
	Less receipts	(288)	193	245	Profit on book sale		529
122	Grants, Seminars Field trips etc.	1,390					Total £20,554
	Less receipts	(1,414)	(24)	£15,120			
	Accounting and audit		150				
	Insurance		100	3,530	Excess income over expenditure		7,303
	Subscriptions paid		273				
	Donation to Acharius memorial		—				
	£11,590		Total £13,251	£11,590			Total £13,251

**BALANCE SHEET AS AT 30/6/94**

LIABILITIES			ASSETS		
3,583	Sundry creditors (inc. advance subs)	430	81,984	Cash at Banks	91,186
906	Life members	1,525	2,438	Stock	2,920
307	Burnet/Wallace Memorial Fund	3,307	1,910	Flora	—
900	Grants and funds in hand	900	121	Debtors	116
80,757	General Fund at 30/6/92	80,757			
	Plus surplus for 12 months	7,303	88,060		
£86,453		Total £94,222	£86,453		Total £94,222

## SECRETARY'S REPORT FOR 1993

The *British Lichen Flora* has been popular and also increased our membership. Out of a print-run of 900, only 20 copies are remaining. Council has now agreed a reprint and a sub-committee has been established to oversee corrections and production of an addendum. Since the *Flora* was published over 30 species have been added to the British list, a tribute to the intense field work being carried out in many regions.

On Friday 8 January, 23 people attended a buffet, slide show and book sale held at the Royal Entomological Society of London, and on Saturday 9 January the Annual General Meeting was held in the NHM. In the afternoon there was a lecture session devoted to the British lichen flora. Council met on three occasions in January, April and September. Major field meetings were held in Scotland and Slovakia, the last mentioned 200 years after the pioneering British explorer, Robert Townson, collected the first lichens in the Tatra mountains. A successful workshop on *Leptogium* and *Collema* was held in Pembrokeshire. I would like to thank all leaders and organisers for their tremendous effort.

Four issues of the *Lichenologist* amounting to 458 pages were produced under the Senior Editorship of Dr Brown, and two bumper issues of the *Bulletin* totalling 135 pages by Dr Crittenden, as well as a supplementary checklist of the *Lichens of Great Britain and Ireland*.

The Conservation Committee has been particularly active on the church-yard front. The production of ecological databases will continue to be an important priority. We now must urgently push forward with the production of the first in a series of fascicles of lichen maps, the first to focus on a selection of mainly woodland lichens. The maps are mostly ready, but volunteers are now needed to write rubrics.

The society has currently 579 members, including 547 full members who take *The Lichenologist*, with 76 new members who joined during 1993.

William Purvis

(Note : the Secretary's report for the year normally appears in the summer issue of the *Bulletin*):

## **NOMINATIONS REQUIRED**

Nominations for Officers for 1995 and four members of the Council for the period 1995-1996 should be sent in writing to the Secretary Dr O W Purvis, Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD before 22 December 1994. No person may be nominated without their consent. T W Chester, A M O'Dare, K Palmer and KA Sandell retire from Council and are not eligible for re-election as Council members. The Vice President, Dr D J Galloway has regretfully decided to resign from his position owing to his and Patricia's decision to return to New Zealand; David will however, continue to serve Council as a Foreign Member Representative.

## **JANUARY MEETINGS 1995**

### **Council Meeting**

Council will meet at 14.00 on Friday 6 January 1995 in the Council Room, Royal Entomological Institute, 41 Queen's Gate, London SW7 5HU. Please let the Secretary have any items you wish Council to discuss by Friday 30 December 1994.

### **Evening buffet/slide show etc**

This event will be held on the evening of Friday 6 January 1995 between 18.00 and 21.00 in the Meeting Room of the Royal Entomological Institute, 41 Queen's Gate, London SW7 5HU. The buffet will cost £10.00 which will include one glass of wine. Members are encouraged this year to bring along lichen books/reprints/specimens for exchange or sale. A slide show will be held and members are invited to bring 12 slides.

If you wish to attend please complete the enclosed form and send a cheque for £10.00 (payable to "The British Lichen Society") to Dr O W Purvis, Department of Botany, The Natural History Museum, Cromwell Road, London, SW7 5BD, before Friday 31 December, so that arrangements for catering can be made.

### **Annual General Meeting/Exhibitions/Lecture Meeting**

The Annual General Meeting will be held in the Demonstration Room of the Palaeontology Department (ground floor), The Natural History Museum, Cromwell Road, London, SW7 5BD, at 10.30 on Saturday 7 January 1995. The Museum opens to the public at 10.00. Please bring along exhibits of lichenological interest for display. Members requiring display boards should contact the Secretary by 16 December letting him know the display

area required. There are no formal arrangements for lunch, though members may eat in the Museum restaurant (entrance on the ground floor in Central Hall, indicated by signposts) or alternatively there are numerous restaurants and pubs in the vicinity.

### *Programme*

10.00 Museum opens to public

10.30 Annual General Meeting

#### **AGENDA**

1. Apologies for Absence
2. Minutes of Annual General Meeting 8 January 1994
3. Matters arising
4. Officer's Reports
5. Meetings 1994-1995
6. Election of Officers
7. Any other business
8. Date and place of next AGM

11.30 Coffee and Exhibition Meeting

12.00 Lunch

14.15 Lecture Meeting

17.00 Close

#### *Lecture Meeting: "Lichen Microenvironments"*

- 14.15-14.40 Watch your niches! (B J Coppins)  
14.40-15.05 Lichen zonation in limestone streams (O L Gilbert)  
15.05-15.30 Lichen microhabitats on a rockslide in the Canadian  
Rocky Mountains (E John)  
15.30-16.00 Tea  
16.00-16.25 Lichens, ice and change (V Winchester)  
16.25-16.35 Discussion

William Purvis

## FROM THE ASSISTANT TREASURER

### *Subscriptions*

New subscription rates were approved at the January 1994 AGM for the five year period 1995 to 1999. These are set out on the enclosed membership renewal form. **Nearly half the membership of the Society already pays by one or other of the two methods described below.**

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First introduced in 1990 this method of payment has proved to be the most popular, not only for the membership but for the Assistant Treasurer as well! A small saving is made over the three or five year period, members do not need to remember to renew subscriptions annually so ensuring that publications arrive without interruption and, for overseas members, commission charges for conversion of payments to sterling need not be made annually. Receipts are issued for all five or three year payments.

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A Mandate Form for the new subscription rate will be sent to every member who pays by this method. Please, complete it and get it to your Bank or Building Society, or cancel the existing Order if you no longer wish to pay by this method, **well before the end of the year** so that incorrect payments are not made to the Society. If you do not already pay by Standing Order please consider this trouble free method of making annual payments which can, of course, be cancelled or altered at any time.

### *Publications*

*The Lichen Flora of Great Britain and Ireland* is in print again. Payment with order ensures the speediest delivery. Also very few copies of *A New Guide to Microchemical Techniques for the Identification of Lichen Substances* by White and James (1985) are now available.

### *Payment by Credit Card or Direct Debit*

I am sometimes asked if payments can be made to the Society by either of these methods. I regret that the membership of the Society is not sufficiently large to justify the considerable charges which would be incurred in setting up and running such schemes.

Jeremy Gray

## LICHEN, LONG TAILED TITS AND "VELCRO"

I had never thought of writing for a lichen journal until invited by your Editor, so I need to give you my credentials. At present I am trying to convince myself that I am an ornithologist. In fact I am an enthusiast of animal building behaviour who has migrated from the world of social insect nest building to that of bird nest building. This is the path that has led me to lichens.

I am presently looking in some detail at the elaborate nest of the long-tailed tit (*Aegithalos caudatus*) to discover how many pieces of different kinds of materials it needs. My ultimate purpose is to determine how difficult it is for a pair of long-tailed tits to build a nest.

The outer nest layer is composed largely of pieces of lichen (on average just short of 3000). These are flat flakes placed pale-surface outermost in a mosaic to give the nest a grey-green colour, largely concealing the darker structural wall of the nest which is an intimate mixture of moss and probably a few hundred spider egg cocoons.

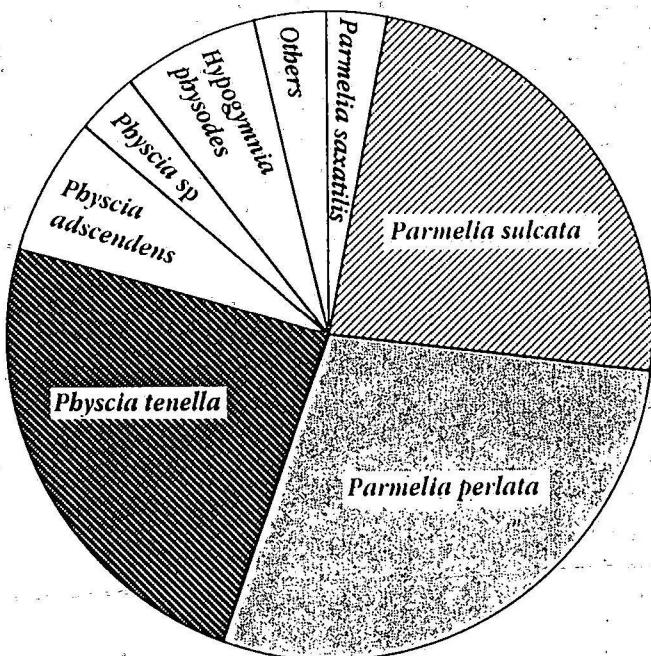


Fig. 1. Proportion of lichens of different species found to contribute to the outer nest layer of the long-tailed tit.

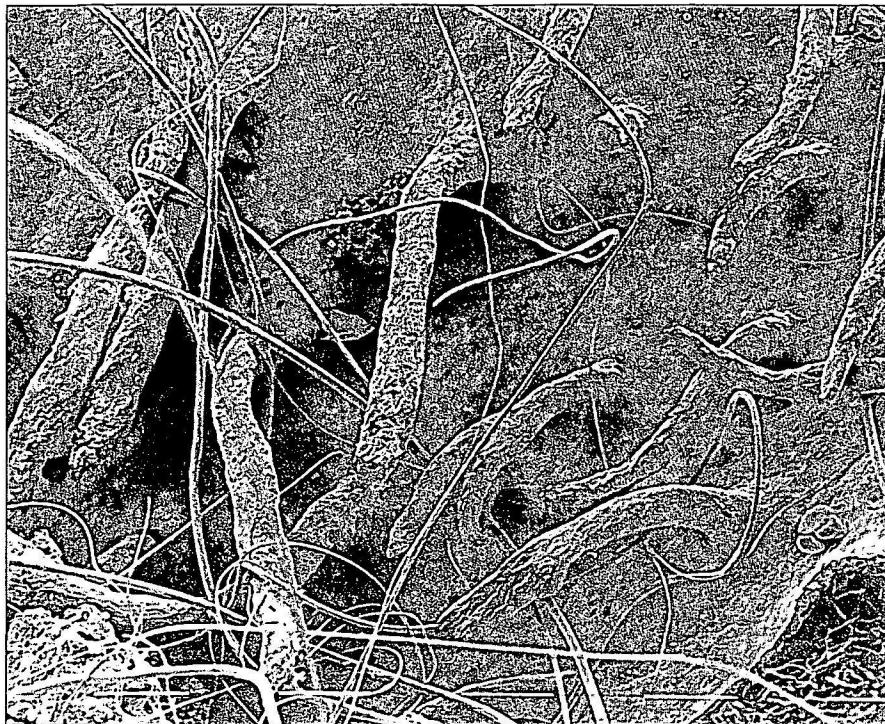


Fig. 2. The undersurface of a lichen flake taken from a long-tailed tit nest. The rhizinae are seen entangled with spider silk of the structural nest layer (bar = 100 $\mu$ m).

With the help of two undergraduate assistants, Carolyn Clark and Lisa Kerr, I wanted to discover which species of lichen the birds used and how they got them to stay in place. The sample of 17 nests we have looked at so far have been sent in from all over Britain but we have found that 77% of the nest covering is composed of only three lichen species (*Parmelia perlata*, *P. sulcata* and *Physcia tenella*) (Fig 1). The long-tailed tits are, it seems, particular in their choice. They are also ingenious in their method of attaching the lichen using the "Velcro" principle. The rhizinae on the dark undersurface of the lichen flakes create the hooked surface which binds with the silk loops of spider cocoons in the structural nest layer (Fig 2). There is, I should add, an inner nest layer of about 1500 feathers which the birds also collect from around the local woodland. This is, you can see, rather a special nest.

But what is this lichen covering for? I had imagined that the answer to this was almost self-evident. The lichen camouflages the nest by matching the lichen on the branches to which the nest was attached. However, long-

tailed tit nests are most commonly sited in bramble, gorse or broom where there are virtually no lichens. In examining the nests of more than 40 other bird species I find essentially the same pattern: lichen covered nests are not attached to lichen-covered branches. My present explanation, which I confess is meeting some scepticism from ornithologists, is that the pale appearance created by the lichen makes the nests look less solid and more spectral causing them to be overlooked or ignored by predators. What do lichen experts think?

Michael Hansell

Division of Environmental and Evolutionary Biology  
Glasgow University

(The Editor thanks Ian Pennie for drawing his attention to Michael Hansell's work)

### **JANUARY 1995 MEETING AT NONSUCH PARK**

On the Sunday following the AGM (January 8 1995) a short field meeting will be held at Nonsuch Park, Ewell, Surrey. This is a large area of open parkland that is of lichenological interest. It is the site where Henry VIII built his Nonsuch Palace which derives its name from his claim that it was grander than any other palace and that there were "nonsuch" like it. Regrettably the palace no longer exists but the park contains ancient walls, a mansion built in the 18th to early 19th century, old farmland, boggy areas and the open parkland. It provides a clear example of how many species are returning to the suburbs of London as the pollution levels fall.

Nonsuch Park is undergoing an intensive survey for all groups of organisms and the current lichen list consists of 41 species but it should be possible to greatly increase this number as only a small area of the park has been examined. Indeed the survey of a most interesting old wall had to be terminated when it was used as the background for the photographs of a wedding party who did not think that lichenologists improved their pictures!

We will meet at the car park in the south west corner alongside the A24 (grid reference 227635) at 10.20 am. We will also be at Stoneleigh station at 10.15 to meet the 9.50 train from Waterloo to Effingham Junction (or the first train after this time if the timetable is changed). Following the field trip those who wish to will, no doubt, visit a local pub for lunch before the journey home.

Frank Dobson

## BLS FIELD MEETING

Based at Oakham, Rutland, 28-31 May 1994

The meeting was attended by 18 persons, mostly BLS members with some local naturalists, and was blessed by perfect sunny weather. The venue was a well-equipped, large meeting room in the Rutland County Museum which was kept open for us throughout the weekend and evenings for a modest fee.

Field visits were arranged to a variety of sites typical for the area, including churchyards, rock quarries of both ironstone and limestone, ancient woodland and parkland. The area is intensively agricultural and suffers the inevitable chemical pollution. Local quarrying raises the dust levels in places. Woodlands are rather sparse except in the east of the county on the Lincs border, but can be locally very rich with relict lichen species. Special attention was placed on previously unvisited sites. Several large parklands are present here but suffer from air pollution except in shelter.

### Quarries.

The Jurassic limestone has been extensively quarried for ironstone. The quarries are known as "gullets" and were abandoned some 30 years ago. Quarrying was by an open-cast technique where a vertical face was excavated to reveal the ironstone seam and spoil was deposited behind the excavator machines. Thistleton Gullet (SK900182) is a typical gorge 1.5 km long, with a high cliff to the north and a steep scree slope to the south with a narrow lake below bordered by *Salix*. The site has been visited many times but revealed several new species. The lichen flora was more typical of acid-rock, probably due to acidic soil water seeping upon rocks and removing base ions. Dominant species were *Trapelia coarctata*, *Porpidia tuberculosa* and *P. crustulata* together with weak basiphiles such as *Verrucaria nigrescens*, *V. muralis*, *Lecanora dispersa* and *Collema crispum*. Some problematical *Leptogium* spp. were found. *Caloplaca* species, normally typical of limestone, were very rare except on bird perches (*C. decipiens* was notable, with *Xanthoria elegans*). *Collema cristatum* var. *marginale* and *C. limosum* were on soft, flaking rock. Noteworthy species were *Acarospora heppii* (3rd county record) and *Gyalecta jenensis*. The latter was the first vice county record since 1908, but coincidentally was found at two other places during this meeting. Provisionally identified were *Leptogium biatorinum* and *L. subtile*, and the parasite *Taeniolina scripta* was on *Bacidia sabuletorum*. In the recent past the site has revealed *Vezdaea aestivalis* and *Parmelia acetabulum* on *Salix*.

Ketton Quarry (SK978052) was very different being of hard Jurassic limestone now worked for cement. The old quarry (an SSSI) is much overgrown with hawthorn, and is now mostly a limestone grassland with tiny stones and rabbit dung. In places limestone blocks are left in large, free-standing piles, which are used as bird perches and are the main habitat for yellow *Caloplaca*. Shaded limestone blocks below hawthorn had abundant *Cladonia chlorophaea*, *C. pocillum* and *Bacidia bagliettiana*. Noteworthy species included *Collema cristatum* var. *marginale*, *Placynthium tremniacum* (much overlooked and identifiable by spore characters), *Gyalecta jenensis*, *Clauzadea monticola* and *Leptogium subtile* on small stones in soil. Ash trees were rich for the area with *Bacidia naegelii* and *B. arceutina*.

### Parkland

Exton Park (SK920112) was visited by kind permission of Lord Gainsborough. This is a very well-kept parkland and extremely private. A big storm in 1974 brought down many old trees, but a number of exotic and specimen trees remain, especially by the lake. Most of the site was open and windswept but lichens occurred in sheltered areas by the lake. The large areas of promising woodland to the north were not visited.

An old ruined house, destroyed by fire in the early 1800's, was of brick with limestone facing, overgrown with nettles and elder. The most noteworthy species were *Bacidia arnoldiana/delicata* with sterile pycnidia, and *Leproplaca chrysodeta* on ironstone in the house wall. *Arthonia spadicea*, *Chaenotheca ferruginea*, *Cliostomum griffithii*, *Dimerella pineti* and *Evernia prunastri* were on ash in a sheltered copse. *Calicium viride* and *Phlyctis argena* were on ash by the lake. Of greater interest in sheep pasture were five walnut trees, about 2ft diam., much enriched by urine at the base, but sheltered from SW winds. These bore a rich lichen flora including *Anisomeridium nyssaegeum*, *Lecanora chlarotera*, *Ochrolechia subviridis* and *Pertusaria amara*.

A limestone dove cote, used as a sheep feeding pen, was very nutrient-enriched, with lichen thalli showing extreme morphological modifications and abundant parasites, including *Arthonia clemens* and an unidentified species blackening the fruits of *Candelariella aurella*.

### Old Woodland

Much ancient woodland remains in East Leicestershire and East Rutland. Pickworth Wood (SK983152), a well-known SSSI, is an ancient oak woodland with a few large old *Salix* and large ash stools, relict hazel coppice, etc. Significant lichens were found in the sheltered ravines and on

elders in sheltered, humid sites at the lowest point of the woodland.

On old elders above the old quarry ponds were typical lichens and lichenicolous fungi, for example *Anisomeridium nyssaegenum*, *Caloplaca cerina* (very rare in VC 55), *Chaenotheca ferruginea*, *Chrysothrix candelaris*, *Cliostomum griffithii*, *Lecania erysibe*, *Lecanora chlorotera*, and *Lichenoconium xanthoriae* (on fruits of *Xanthoria polycarpa*). *Parmelia sulcata* on spindle, was the first fertile specimen recorded for Leics/Rutland. Also fertile were *Physcia adscendens* and *P. tenella*. *Scoliciosporum chlorococcum* and *Strangospora pinicola* were also common.

A very large fallen ash, just beside a swampy area, had many acidophilic lichens in the upper canopy. These included *Calicium viride*, *Candelariella reflexa*, *Chaenotheca ferruginea*, *Hypogymnia physodes*, *H. tubulosa*, *Lichenoconium erodens* on *H. physodes*, *Parmelia caperata*, *P. sulcata*, *Platismatia glauca*, *Ramalina farinacea*, *Usnea* spp. and *Xanthoria candelaria*. A very shaded hazel and field maple beside a stream in a ravine had *Arthonia spadicea*, *Gyalideopsis anastomosans* and *Dimerella pineti*, with *Graphis elegans* on a 5-inch hazel branch leaning over the stream, the third modern record for the county since its disappearance in the 1830s.

A small area of large ash by the old quarry face had locally rare crustose species such as fertile *Cliostomum griffithii*, *Lecanora chlorotera*, *Lecidella elaeochroma* (the second record for VC 55), *Leproplaca chrysodeta*, *Opegrapha atra* (on ivy stem) and *Pertusaria pertusa*.

Bolt Wood (SK827969) was another interesting ancient woodland. A typical east Leicestershire woodland of the old Leighfield forest, on clay-topped hills, on a north facing slope slashed by ravines. Most ash and oak were pollards with ash stools of 1 - 1.5 ft diameter. Noteworthy local rarities were *Arthonia spadicea*, *Bacidia vezdae* (pycnidia on mossy ash), *Lecanactis abietina* (abundant on ash and a local ancient woodland indicator) and *Macentina stigonemoides* on elder (second vice county record). Nearby were two huge hollow ash trees in Great Spinney (SK829972). Along with an enormous grass-snake were *Caloplaca ulcerosa* (second vice county record), *Candelariella reflexa*, *Cliostomum griffithii*, *Enterographa crassa* (third vice county record), *Lecidella elaeochroma*, *Opegrapha vulgata*, *Pyrrhospora quernea* and *Ramalina farinacea*.

Tugby Wood (SK768022), also ancient and renowned for its flowering plants, was less interesting lichenologically with few old trees. However, *Graphis scripta* was the only Leicestershire record since the 1830s, with two 1990's sites known in Rutland. The nearby Loddington Reddish

(SK774022) was very interesting and deserves a further visit. The River bank, on the east side of the River Eyebrook at SK770023, had some very large *Salix* overhanging the river and one very large poplar, fallen over the river and regenerated, beneath which grew toothwort. Noteworthy lichens were *Anisomeridium nyssaegeum* (fertile), *Bacidia arnoldiana*, *B. viridifarinosa* (second Leicestershire record) on *Salix* in stream bed, *Mycoblastus caesius*, *Lecanactis abietina*, *Parmelia glabratula*, *P. saxatilis*, *Pertusaria amara*, *Pyrrhospora quernea*, *Schismatomma decolorans* and *Usnea* sp.

The wood at Loddington Reddish (SK773022) was a dry valley oak wood with some ash, hazel and field maple. It was very dry underfoot, sloping south to a meadow and sheltered from the SW by a tree belt. Here pycnidia of *Bacidia vezdae* were found on mossy ash and *Parmeliopsis ambigua* on a well-lit ash coppice stool. *Lecanactis abietina*, *Lecanora pulicaris* (on shaded ash), *Parmelia glabratula*, *Pertusaria amara* and *P. pertusa* were also recorded.

Across the border in Northamptonshire, the very extensive Wakerley Wood (SP960985) was visited. This was very open, thin ash woodland with many very old coppice stools and some hazel and oak, on a rather flat and rather dry terrain. In this very air-polluted site, lichens were almost entirely at ground level (eg under stumps) except for some recently arrived macrolichens on hawthorn and *Salix*. The lichen flora was very unlike that in Leics and Rutland where acidophilic macrolichens dominate the upper canopy. The more interesting lichens on trees at ground level were *Anisomeridium nyssaegeum*, *Arthonia spadicea*, *Chaenotheca ferruginea*, *Opegrapha ochrocheila*, on basal bark of ash and oak, and *Porina aenea*.

## Churchyards

Twenty churchyards were visited during the meeting and 124 taxa were recorded, of which 119 occurred on stone, 16 on lignum, six on trees and three on other substrata. It is possible that the list will be extended once numerous scrapings have been analysed! All but one of the sites was in VC 55, the other being Thornhaugh just over the border in VC 32.

Geologically, the sites fall into two broad groupings: those in the east where almost everything is made from the local Lincolnshire Limestone and those in the west and central area where ironstone churches predominate. The second is a more complex area. In the extreme north-west between Oakham and Melton Mowbray (extending into Leicestershire proper), churches and boundary walls are made mainly of Middle Liias Marlstone

and memorials of Swithland Slate. The further away one goes from Oakham the higher is the proportion of slate headstones. In the low lying parts of the central area immediately to the west and to the south of Rutland Water, less slate has been brought in from the west for headstones and correspondingly more limestone has been transported from the quarries to the east. On the higher ground to the south of Oakham, the Northampton Sand Ironstone occurs above the marlstone and is used to build at least some of the church structures.

Five species were recorded for the first time in vice-county 55, these being *Collema fuscovirens*, *Lecanora conferta*, *Lempholemma polyanthes*, *Pyrenocolemma saxicola* and *Verrucaria caerulea*. The first two are now being increasingly recorded as we learn to sieve them out from their more common look-alikes (*Collema auriforme* and *Lecanora dispersa* respectively). The *Lempholemma* was found among mosses on the somewhat soggy Weldon Stone base to a cross at Caldecott. The *Pyrenocolemma*, by contrast, occurred with *Acrocordia conoidea* on hard, shaded limestone at the west end of the church at Cold Overton. It is the first lowland churchyard record. The *Verrucaria* was also found on hard, shaded limestone, this time on a basal slab beside the church at Clipsham. It occurs more frequently on natural outcrops in upland Britain.

Eight taxa had been recorded only once before in the vice-county. Five of these - *Arthonia lapidicola*, *Caloplaca isidiigera*, *Haematomma ochroleucum* var. *porphyrium*, *Solenopsora candicans* and *Trapelia placodioides* - are all rated as "one-star" lichens and are not infrequent in Midland churchyards. *Caloplaca crenularia*, found on top of the sandstone boundary wall at Ketton, is, on the other hand, much less common in central areas. *Rinodina bischoffii* (together with *Caloplaca lactea*) was also on the sunny parapet of a perimeter wall at Clipsham and on a south-facing chamfered plinth at Somerby, both, in this case, constructed of limestone. Because there is little obvious thallus, this species is easily overlooked. On Sheard's 1965 distribution map (*Lichenologist* 3:363), there were no records in the eastern half of England. A few tiny bright green fruits of *Thelocarpon laureri* were surprisingly discovered on a clean-looking seat at Manton. The only other vice-county record is also on a seat made of elm wood. This is the first known churchyard record.

Other interesting records included *Bacidia arnoldiana*, fertile on iron at both Exton and Ketton, and *B. delicata*, also fertile, on a shaded moss-covered church wall at Upper Hambledon. The top of a calcareous chest-tomb at Ketton was well covered with *Leptogium turgidum*, a species difficult to distinguish from *L. schraderi*, which was located at both Exton

and Uppingham. Another confusing pair of species is *Porpidia tuberculosa* and the much-overlooked and under-recorded *P. soredizodes* which occurred on slate at Preston and sandstone at Tilton-on-the Hill. Its soralia, in contrast to those of its more common relative, tend to be lighter than the thallus, more excavate, and are K+y. *Rinodina calcarea*, found at almost every churchyard in the nearby Soke of Peterborough, was recorded at 17 of the 20 sites visited. Clearly the East Midlands is the mecca for this species described in the *Flora* as "very rare"! One of the highlights of the meeting was finding a genuine Midlands rarity, *Gyalecta jenensis*, on a limestone coped tomb at Manton.

No really rich sites were discovered. There is so much good limestone to the east that almost everything is constructed of it, thus producing a monoculture. This stone is characteristically colonized by 50-60 species and to achieve a total much in excess of this is difficult and is dependent upon what occurs on the occasional sandstone or granite memorial, on lignum, and on the usually impoverished flora of any trees. For example, Exton, a splendid limestone site and scrutinised thoroughly, produced a relatively moderate 73 species - 56 on limestone, 13 on sandstone, three exclusively on lignum and one on metal. Similarly, to the west of Oakham, the higher proportion of slate memorials is apt to depress totals. A somewhat dry environment and perhaps high levels of agri-pollution may be further contributory factors.

In the last *Bulletin*, the report on Pembrokeshire churchyards pointed to some surprising omissions. Similarly, in Rutland, certain relatively common saxicolous lichens (ie unstarred or one-star species) were either poorly represented or totally absent. These include foliose genera such as *Collema*, *Leptogium* and *Parmelia*. Only one *Cladonia* was recorded and this was on Triassic sandstone capping part of the boundary wall at Manton. Species not recorded at all included *Buellia ocellata*, *Ochrolechia parella*, *Opegrapha saxatilis*, *Physcia dubia*, *Polysporina simplex* and the more recently described *Lecanora pannonica* - all of which occur in neighbouring vice-counties. Some of the reasons are suggested in the paragraph above. Hopefully, we shall learn much more about these local and regional variations when records can be fed into a computer database and distribution maps produced for churchyard species.

Anthony Fletcher & Tom Chester

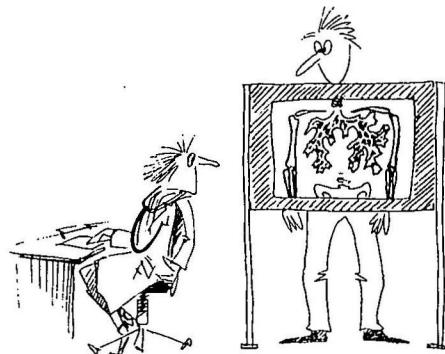
[A more detailed 10 page report on the churchyards is available from TWC. An A4 sae and three additional 19p stamps would help to defray costs.]

**LICHENS AND THE REST** by Jolanta Miądlikowska & Michał Skakuj

*Lichens and man . . .*



*They feed us . . .*



*. . . safeguard our health . . .*



*. . . adorn us . . .*



*. . . in fact, they fall as manna from heaven.*

## **SWEEEPING CHANGES IN BOTANICAL NOMENCLATURE**

*or why it is no longer necessary to change a name for purely  
nomenclatural reasons*

By the time you read this the new *Code of Botanical Nomenclature* will have been published. While it is changed every six years after each International Botanical Congress (IBC), this time some major alterations have been introduced. These follow the fifteenth IBC in Yokohama last year (see BLS *Bulletin* 73: 10-15), which resolved in its plenary session to urge taxonomists "to avoid displacing well established names for purely nomenclatural reasons, whether by change in their application or by resurrection of long-forgotten names . . ." The changes in the *Code* by the Nomenclatural Section reflect the increasing concern of people affected by name changes, that once familiar scientific names are too liable to disappear and that these replacements occur all too often.

The Section sought to stabilise this by two methods. First, to extend the use of conservation and rejection. Under the Tokyo *Code* all names at the rank of family, genus and species can be proposed for conservation if threatened by earlier valid names. Likewise, any name that could cause a disadvantageous nomenclatural change can be proposed for rejection. Second, they have supported the compilation of lists of Names in Current Use (NCUs), which in the future would merit protected status against all competing names: although the protection of these was not approved this time, one of the lists covering fungi was the subject of a special resolution. These lists should be agreed by the relevant experts and will comprise all the currently used, validly published taxa of a particular group and/or a rank, allowing for differing taxonomic opinions. Several such lists have already been published such as T. Ahti's "Names in Current Use in the *Cladoniaceae* in the ranks of genus to variety" (1993). More are due to be prepared and will be presented to the next IBC for ratification, as will revisions of existing lists.

Other changes to the *Code* involve further tightening up of requirements for valid publication which, from 2000, will involve the submission of papers where any new taxa are introduced to a registering office for that group. Exact details are due to be presented to the next IBC in St Louis in 1999.

Further significant alterations include:

- A new appendix for suppressed works which are not to be treated as a source of names.
- Proposals to further harmonisation between the different biological codes

(e.g. the category of Phylum can now be used in Botanical classifications as an alternative to Division).

- In author citations the form "Author A in Author B" is ruled unacceptable as the part "in Author B" belongs to the bibliographic details and not the name.

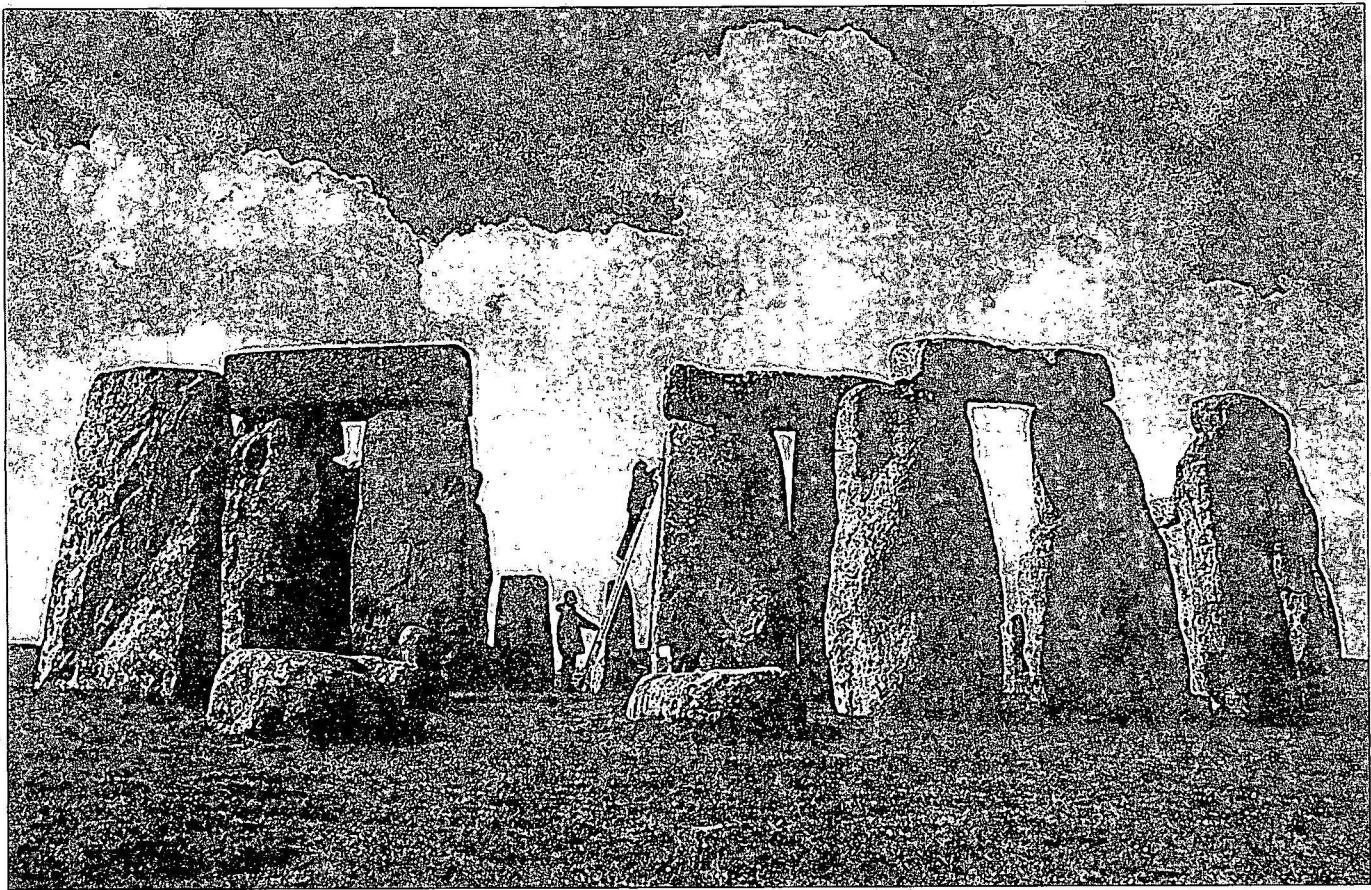
The most obvious difference between the Tokyo (1994) Code and the Berlin (1988) Code will be the sequence of some of the later Articles. Over the years there have been many additions and deletions to the Articles. This time the editors have rearranged the Code so that there are now only 62 Articles, whereas the Berlin Code contained 76, but some of these were the remains of deletions. This means that some of the well known articles have changed their numbers (e.g. superfluous names: Berlin Code, Art. 64 - Tokyo Code, Art 52), but Art 59 (pleomorphic fungi) remains unchanged.

At long last the *Code* recognises that lichens are not a taxon in the renaming of the "Committee for Fungi and Lichens" to the "Committee for Fungi". "Lichen" names refer to the fungal component alone, so the previous distinction was biological nonsense! A lichen, as a combination of a fungus and an alga, has no name; only the individual components bear names and it is the fungal name which is used to refer to the symbiosis.

John David.

## CALIFORNIA LICHEN SOCIETY FORMED

On 29 January 1994 a group of seven lichenologists met at a cabin amidst the Californian redwood forests to form the California Lichen Society. Janet Doell was elected president, the membership currently standing at 21. The focus of the Society is to promote the appreciation, conservation and study of Californian lichens. Field trips and seminars have either already been held or are planned in the near future, and the Society publishes a newsletter (*Bulletin of the California Lichen Society*): Volume 1, No 1, Summer 1994 is the current issue. A contact address is not given in the *CLS Bulletin* but those seeking further information might write to Cherie Bratt, Santa Barbara Museum of Natural History, 2559 Puesta Del Sol Rd, Santa Barbara, CA 93105, USA.



This picture by David Mansell appeared in The Observer on Sunday 17 April 1994. It shows Francis Rose (up the ladder) and Peter James surveying the lichens on Stonehenge at the request of English Heritage.

## CHURCHYARDS PROJECT: QUINQUENNIAL REPORT 1990-94

By the time you read this the project, which sets out to provide a detailed study of the ecology of churchyard lichens and their conservation, will have been up and running for five years. It seems appropriate, therefore, to extend the annual report into one summarising the first half-decade. It is fitting also in the sense that architects produce quinquennial reports on the fabric of church buildings; I was once told by Richard Halsey, Secretary to the Cathedrals and Churches Advisory Committee, that the best way to ensure that lichens on churches received continuing attention was to publicise them in these reports.

The project really started when, in the 1989 winter *Bulletin*, Kery Dalby described how he had proposed to the Conservation Committee that each "reasonably defined saxicolous habitat" should "have a Convenor taking the initial responsibility for extracting available published data, plus any other data known through individual lichenologists' field experience." In December 1989, a short time after reading his article, I wrote to Kery offering my services.

Initially, an attempt was made to record all the saxicolous species that had ever been found on church buildings and in graveyards or cemeteries throughout the British Isles. A list of 274 saxicolous taxa gleaned from various sources was soon augmented by feedback from colleagues. In 1990, it was further extended to cover all substrates and refined by the taxonomic expertise of Jack Laundon. In the winter *Bulletin* I was able to report that the list had risen to 435, of which 344 were saxicolous. Much of what had been learned from more expert colleagues was distilled into a lecture given at the 1991 AGM and reproduced in the following summer *Bulletin*.

The emphasis on recording continued throughout 1991. A table in *Bulletin* 69 showing the top twenty sites in terms of species richness added a slightly competitive edge to procedures! This list contained nine churches with more than 100 species. The number has now more than trebled, the latest sites to be added being Thornborough in Buckinghamshire, Chiddingfold in Surrey, Buxted in East Sussex, Rusper in West Sussex, Droxford in Hampshire, and Carlisle Cemetery which has something of a headstone start, having over 75,000 of them!

The conservation element has, of course, been present from the start. This was greatly enhanced by my contacts with Eve Dennis who was instrumental in establishing the Living Churchyards Project. Eve gave me the

**CHURCHYARDS PROJECT: 1990-94**

PHASE 1: LOWLAND ENGLAND					PHASE 2: UPLAND ENGLAND						
	RECORDING	ASSESSMENT	CONSERVATION	EDUCATION							
1990	National checklist of species - literature searches - vice-county lists - site surveys		Initial involvement with Living Churchyards Project including meetings with other specialist recorders		Included in initial lists						
					Site surveys & reports						
1991	AGM Lecture: "Churchyard Lichen Survey"		Site & area conservation workshops								
	More precise substrate lists inc. corticolous lignicolous & terricolous species - site surveys	Top 20 sites			Site surveys and reports						
1992	Vice-county lists built up	Initial site & species assessment	Site & area conservation workshops								
	Gloucester Cathedral pilot project										
	Provisional guidelines formulated at Stoneleigh Seminar										
Churchyard Sub-committee formed/clarification of lowland and upland areas The four inter-related strands established											
Site surveys & reports											
1993	Initial work on mapping card  Site surveys & reports	Saxicolous star ratings - site rating	Site & area conservation workshops								
			Initial work on revised leaflet		Site surveys & reports						
1994	Mapping card published with related abbreviations  Site surveys & reports	Lignicolous star ratings - saxicolous ratings reviewed	Site & area conservation workshops								
			revised leaflet published	Initial work on schools pack & back-up materials	3 Area Coordinators						
			Site surveys & reports								
National Cemetery Workshop (Carlisle)											

opportunity to meet up with church officials of considerable influence, family historians, and other naturalists with different churchyard specialisms and convey to them the supreme importance of churchyards for lichen conservation. It was due to Eve that, in 1992, we became part of the Cathedral Project, first at Gloucester, later at Peterborough and Ely and, more recently, at Winchester, where we are to carry out a survey shortly. Because of Eve also, Churchyard Conservation Seminars are now springing up all over the British Isles and thereby creating a quiet revolution in attitudes and practises. Ken Sandell and I contributed to one at Savernake church (Wiltshire) in May. We were followed, in June, by Keith Palmer at Hartfield (E Sussex), Chris Hitch at Haddenham (Cambridgeshire), and Sheila Street and Jeremy Gray at Cudworth (Somerset). A month later, Bill Casey represented us at a meeting at Sandwell Council House in the W Midlands. Frank Dobson will shortly attend a similar day at the Wildlife Garden Centre in Peckham.

At Sandwell, the focus was on the wildlife of cemeteries and this added dimension will also form part of the agenda at the Peckham meeting. The current president of the Institute of Burial and Cremation Administration happens fortunately to be Ken West who is manager at the Carlisle Cemetery mentioned above. Ken, and Anne his wife, are now members of the BLS. This year's Annual Conference has just been held at Carlisle and wildlife conservation was a prominent theme. Eve Dennis, a number of local naturalists and I helped with workshops, while Chris Baines gave a keynote lecture.

If this summary appears to be all about Eve, it is with good reason! She was instrumental in providing us with a venue at Stoneleigh, Warwickshire, for our first national conference on churchyard lichens. It was held in October 1992 and provided a real high point for the project. The four discussion group leaders - Keith Palmer, Ken Sandell, Don Smith and John Walton - joined me a month later to form the Churchyards Sub-committee and we have met regularly since, most recently on 4 August. Sad to say, because of his many musical commitments, John has decided to resign, but will still continue to act as co-ordinator for the Welsh Borders and W Midlands. We have, however, invited Ishpi Blatchley and the SW area co-ordinator, Sheila Street, to join us.

During the first phase of the project, spanning the two years since Stoneleigh, the committee has focused primarily on surveys within a defined lowland area of 35 vice-counties and the saxicolous species within this area have been given a star rating based on the number of site records.

The list continues to be extended. Francis Rose, for example, has recently found *Parmelia omphalodes* in Surrey. A formula for the rating of sites has also been suggested. So far, this is based purely on saxicolous records. A lignicolous list, currently numbering 110 taxa, is now being tentatively rated and will be published in a future *Bulletin*.

A number of this year's ventures have already been mentioned. However, two additional highlights have been the publication of the new conservation leaflet, *Churchyard Lichens*, and a Churchyard Mapping Card, copies of which were included in the last *Bulletin*. The leaflet has already been widely distributed and well received. The grapevine publicity is clearly working well. The mapping card has provided an effective design for recording which is likely to be adopted by other habitat groups. Don't forget that a suitably sized and stamped addressed envelope will provide you with a supply of either or both. For example, if you send me an A4 envelope and 29p stamp you will receive 14 of either or 7 each of both, depending on your requirements.

Site surveys have progressed steadily throughout the year. In the south, thanks to Francis Rose, Keith Palmer *et al*, much of Kent and Sussex has now been covered and increasingly intensive excursions are being made into E Hampshire and Surrey. In the north, Mark Seaward regularly sends me lists for N Lincolnshire, while Don Smith, having visited most sites in SE Yorkshire, has made numerous long-distance excursions to the Pennines and beyond into Cumbria and even SW Scotland. He has been most diligent in provide incumbents with site list and conservation recommendations. In April, on a hilltop site in gales and driving rain, I helped Keith Palmer celebrate his 1000th survey. Sadly, we both forgot the champagne, although a hot toddy would have been more appropriate. There was also a certain aptness about the name of the church - it was Old Sodbury! Alongside Bill Lacey, I was able in May to discover some fine churchyards in N Worcestershire, while more recently the Churchyards Committee had its first annual gap-filling outing to the Evesham area. Sites on the western fringes of this vice-county will no doubt receive attention during our Autumn field meeting.

I am not sure that in 1994 we can nominate a species of the year. Some newcomers to the lowland list have already been mentioned and it has been exciting to find four more records of *Lecanora pruinosa*. Other C+ yellow-orange varieties of what was formerly dismissed as *Lecanora dispersa* agg. are turning up all over the place on both calcareous and acid stone. Either our concept of *L. conferta* will have to be revised or more than one species

is involved. It is possible that some of the records are *L. andrewii*, although all the collections tested so far appear to be Pd-. New lowland saxicolous sites for a number of \*\*\* species have been discovered, including *Bacidia arceutina*, *B. fuscoviridis*, *Caloplaca ceracea*, *Hymenelia prevostii*, *Lecanora epanora*, *Lepraria lobifrons*, *Micarea erratica*, *M. lignaria*, *Petractis clausa*, *Physcia aipolia*, *P. clementei*, *Placynthiella icmalea*, *Protoblastenia incrassans*, *Trapeliopsis flexuosa* and *Verrucaria simplex*. It is clear that a number of species will soon have to be re-assessed and, as a result, may twinkle a little less brightly in the future.

One aspect of my own role which is a mixed blessing is an ever increasing mailbag. It is a pleasure to hear from so many people who for one reason or another are interested in churchyard lichens. They range from individual students seeking help with educational projects to church conservation groups and district councils. This year, they have included letters from the Dry Stone Walling Association, the Curator of Liverpool Museum who is preparing an exhibition of James Bolton's lichen drawings, Hilary Lees, who is following up her book on Cotswold Churches with one on Cornwall, and the person co-ordinating projects at West Thurrock - the churchyard used in the film "Four Weddings and a Funeral". On the other hand, replying to so many and varied requests and queries (currently, almost ten a month) is time-consuming and especially frustrating on fine summer days when one would much rather be out in the field.

A final word about Eve. No one within the Society, let alone a non-member, has done more to further the cause of lichens in churchyards. By the time you read this, she will have been retired for three months and hopefully will be finding time to relax. I know she will continue in some capacity - probably through writing - to ensure that the Living Churchyard remains a live issue. We wish her well.

## Towards the Millennium

We now need to look ahead. The next five years will bring us to the year 2000. May I suggest that our objectives should include the following:

1. That every church and cemetery in the land and all persons connected with and related to them should be made aware of the importance of lichens and their conservation.
2. That at least one churchyard in every 10k square in lowland England should have been surveyed. There are approximately 780 such squares and at least 550 have already received this minimal coverage.

3. That all existing information is fed into a relational database capable of producing, among other things, effective distribution maps.
4. That the increasing knowledge thus gained is summarised in an article in *The Lichenologist*.
5. That a set of educational projects for use by students of all ages and abilities and their teachers is published.

Tom Chester

#### **NANCY WALLACE - ALICE BURNETT FUND**

An anonymous donor has most generously presented £3000 to the BLS to support members who would like to attend BLS field meetings but for whom finances would be difficult. The kind benefactor writes that "the idea originated from the North York Moor meet when an impoverished undergraduate (now the Secretary!) mouldered in digs eating fish and chips somewhere whilst other participants lodged in some style at the Headquarters Hotel". Clearly the value of such field meetings are the human contacts one makes as well as the lichenological ones. In recognition of two loyal ladies, Nancy Wallace and Alice Burnett, who gave such support to newcomers during field meetings in the 60s and 70s, the fund shall be called the N. Wallace and A. Burnett fund.

Applications to the fund should be made in the first instance to the President.

William Purvis

## NEW, RARE AND INTERESTING BRITISH LICHEN RECORDS

(Contributions to this section are always welcome. Please submit entries to Chris Hitch, The Whin, Wadd Lane, Snape, Saxmundham, Suffolk IP17 1QY, in the form of species, habitat, locality, VC no, VC name, Grid Reference (GR), altitude, where applicable, in metres (m), date, comments and recorder. An authority with date after a species is only included, when the record is new to the British Isles. *(In the interests of accuracy, typescript is much appreciated. Please only use one side of the paper.)*

*Absconditella celata*: on soil in perennial border, Llanbadarn College campus, VC 46, Cardigan, GR 22/60-81-, February 1994. Confirmed B J Coppins. Also frequent on compacted soil, with *Vezdaea retigera*, *Cladonia humilis* and *Peltigera didactyla* on the landward slope behind Tanybwlc beach, VC 46, Cardigan, GR 22/57-79-.

S P Chambers

*Arthonia abelonae*: on thallus of *Sticta dufourii*, SSW of Ardrishaig, Inverneil Burn, VC101, Kintyre, GR 16/83-81-, 1994. Second British record.

B J Coppins and A M O'Dare

*Arthothelium reagens*: on *Corylus*, SSW of Ardrishaig, Inverneil Burn, VC 101, Kintyre, GR 16/83-81, 1994. A southerly extension of the known range of this hyper-oceanic species.

B J Coppins and A M O'Dare

*Arthrorhaphis aeruginosa*: on *Cladonia* squamules, with apothecia, Hawkridge Ridge Wood, Barle Valley, VC 5, South Somerset, GR 21/88-29, 1994. New to England. This apparently much overlooked species causes a bluish staining of *Cladonia* squamules, but its apothecia and pycnidia are often elusive.

B J Coppins and A M O'Dare

*Bacidia arceutina*: fertile on west side of ironstone headstone, Fritwell church, VC 23, Oxford, GR 42/52-29-, April 1993. Probably first saxicolous record for the vice-county. Determined B J Coppins.

T W Chester

*Bacidia fuscoviridis*: fertile on north-facing string course of Hillesden church, VC 24, Buckingham, GR 42/68-28-, January 1994. First vice-county record and second British churchyard record of this probably much overlooked species. Determined B J Coppins.

T W Chester

*Biatoridium delitescens* (syn *Strangospora delitescens*): on mossy bole of young *Fraxinus*, in relict patch of streamside woodland, Cwm Wyre, VC 46, Cardigan, GR 22/55-69-, alt 30m, July 1994. Confirmed B J Coppins. New to Wales.

S P Chambers

*Blarneya hibernica*: on trunk of *Quercus* in valley woodland, SW of Tucker's Bridge, Arlington, VC 4, North Devon, GR 21/39-60-, 1994. An easterly extension of its range in southern England.

B J Coppins and A M O'Dare

*Caloplaca scopolaris*: locally abundant on nutrient-enriched exposed rocks of headland, with *Lecania aipospila*, Rubha na h-Airde Glaise, Torridon, VC 105, West Ross, GR 18/80-56-, 1994.

B J Coppins, A M Fryday and A M O'Dare

*Carbonea supersparsa*: on *Lecanora polytropa*, Penlanfach mine, VC 46, Cardigan, GR 22/73-70-, alt 300m, May 1993. Confirmed B J Coppins.

S P Chambers

*Catillaria alba*: on ancient oak pollard, Buckle Grove, Silsoe, VC 30, Bedford, GR 52/08-34-, 1994. New to England.

B J Coppins and A M O'Dare

*Catillaria minuta*: on calcareous boulders in River Lemon, Broadridge Wood, Newton Abbot, VC 3, South Devon, GR 20/8—7—, 1993. First British record this century; new to England. Confirmed B J Coppins

B Benfield

*Clauroxia chalybeoides*: in seepage cracks in fractured sandstone crag, Bodcoll, Devil's Bridge, VC 46, Cardigan, GR 22/75-76-, alt 230m, October 1993. New to Cardigan.

S P Chambers

*Cyphelium notarisi*i: small thalli on two wooden seats at the edge of a playing field at Winchelsea, VC 14, East Sussex, GR 51/90-17-, August 1994. Also small thalli on a wooden seat in a public garden at Hythe, VC 15, East Kent, GR 61/16-34-, August 1994.

K Palmer

*Enterographa elaborata*: on three old *Fagus* in rain tracks with *E. crassa*, in pasture woodland, Yewtree Hill, Great Stubby Hat and Frenchs Bushes, New Forest, VC 11, South Hants, GR 41/2—1— and 41/3—1—, November 1993 and January 1994 respectively. The first colony found was on a

decrepit, naturally pollarded beech where it dominated 2.0 x 0.5m of bark in a strong rain track. The other two records consisted of tiny thalli of *E. elaborata*, within *E. crassa* mosaics in weaker tracks. It could be overlooked in the New Forest in the latter form. First records from Britain for more than 100 years.

N A Sanderson

*Eopyrenula avellanae*: on several old *Corylus* in *Fraxinus*-dominated high forest, High Wood, Longleat, VC 8, South Wilts, GR 31/80-42-, December 1993. First record for Wiltshire.

N A Sanderson

*Ephebe hispidula*: on damp floor of mine adit, Cwmystwyth mine, VC 46, Cardigan, GR 22/80-75-, alt 420 m, July 1992. Confirmed B J Coppins. New to Cardigan.

N A Sanderson

*Epigloea medioincrassata*: on remains of broken wheel-pit, Siglen-las mine, VC 47, Montgomery, GR 22/86-84-, alt 370m, September 1993. Confirmed B J Coppins.

S P Chambers

*Gyalideopsis muscicola*: on *Hypnum* sp with *Parmeliella jamesii* on *Fraxinus*, Llyfnant Valley, VC 46, Cardigan, GR 22/73-97-, alt 140m, September 1993. New to Cardigan.

S P Chambers

*Lecanactis premnea*: on two ancient oak pollards, Buckle Grove, Silsoe, VC 30, Bedford, GR 52/08-34-, 1994.

B J Coppins and A M O'Dare

*Lecania cuprea*: on mortar of brick retaining wall in deep shade, Parham church, VC 13, West Sussex, GR 51/05-14-, April 1991. First vice-county record and probably first British churchyard record. Determined B J Coppins.

T W Chester

*Lecanora pruinosa*: this species had not been recorded in Britain this century until it was found and identified at Cricklade churchyard, North Wilts in April 1993 (*Bulletin 72*). Since then it has been recorded on a limestone window-ledge on the south wall and south-west churchyard boundary wall of Charing church, VC 15, East Kent, GR 51/95-49- (first observed in November 1989, determined June 1993); on limestone buttress of the east wall and on an east-facing limestone headstone at North

Stoneham churchyard, VC 11, South Hants, GR 41/44-17-, February 1994; and on limestone window-ledge of the south wall of Elmley Castle church, VC 37, Worcester, GR 32/98-41-, September 1994.

K Palmer

*Lecanora pruinosa*: on limestone top of eastern boundary wall of Overbury churchyard, VC 37, Worcester GR 32/95-37-, September 1994.

T W Chester

*Lecidea endomelaena*: known from nine metal mines in VC 43, Radnor, VC 46, Cardigan and VC 47, Montgomery. First record from Cwm Rheidol, VC 46, Cardigan, GR 22/73-78-, alt 150 m, February 1989.

A Fryday

*Leptogium corniculatum*: on unfrequented tar-macadam pavement, Glanyrafon Industrial Estate, near Aberystwyth, VC 46, Cardigan, GR 22/61-80-, October 1992. Confirmed B J Coppins. New to Cardigan.

S P Chambers

*Lichenodium sirosiphoides*: on mossy boulder in humid woodland, Cwm Einion, VC 46, Cardigan, GR 22/69-94-, January 1994. Determined B J Coppins. Second British record and new to Wales.

S P Chambers

*Micarea marginata*: on slate in damp shaded situation, Burnham Quarry, Dunkeld, VC 88, Mid-Perth, GR 37/03-40-, alt 300m, 1991. Found with apothecia for the second time in the British Isles (see previous issue). Determined B J Coppins.

M Senior

*Microcalicium disseminatum*: on ancient oak pollard, partly parasitising *Chaenotheca trichialis*, Buckle Grove, Silsoe, VC 30, Bedford, GR 52/08-34-, 1994. New to Bedfordshire.

B J Coppins and A M O'Dare

*Micarea pycnidiphora*: fruiting through *Frullania tamarisci*, on smooth barked, well lit *Sorbus aucuparia* with *Parmelia horrescens* and *Micarea cinerea* (fertile) in old woodland, Cwm Einion, VC 46, Cardigan, GR 22/69-94-, March 1994. Confirmed F Rose. New to Cardigan.

S P Chambers

*Miriquidica lulensis*: on damp wall composed of iron-rich shale, with *Lecanora epanora* and *Lecidea endomelaena*, Bryn Dyfi mine, VC 46, Cardigan, GR 22/68-93-, January 1994. New to Wales.

A Fryday and S P Chambers

*Opegrapha xerica*: on dry craggy bark at base of old oak, with *Lecanactis subabietina* and *Schismatomma cretaceum*, in very shaded woodland, Penglanouen, Nanteos, VC 46, Cardigan, GR 22/60-78-, alt 30m, June 1994, Confirmed B J Coppins. New to Cardigan.

S P Chambers

*Parmelia quercina*: large fertile plants on *Acer pseudoplatanus* trunk, Bryn Eithyn Hall, Llanfarian, VC 46, Cardigan, GR 22/58-78-, September 1992. On large *Fraxinus*, Llancynfelin mine, VC 46, Cardigan, GR 22/65-92-, alt 25m, July 1993. New to Cardigan.

S P Chambers

*Parmelia soredians*: top of horizontal *Ilex* branch, Bryn Eithyn Hall, Llanfarian, VC 46, Cardigan, GR 22/58-78-, September 1992. New to Cardigan.

S P Chambers

*Parmelia soredians*: corticolous in the churchyard at Overbury, VC 37, Worcester, GR 32/95-37-, September 1994. This species is normally a lichen of extreme south and south-eastern England with some records from western coasts. Thus the species is here well outside its normal range.

K Palmer

*Pertusaria velata*: on three *Fraxinus* in *Fraxinus* dominated high forest, High Wood, Longleat, VC 8, South Wilts, GR 31/80-42-, December 1993. Confirms the survival of this "Red Data Book" species, in spite of the clear-felling of all but 2.48 ha of the mature woodland in 1979.

N A Sanderson

*Phaeographis inusta*: on fallen *Fraxinus* and *Sorbus aucuparia*, Llyfnant Valley, VC 46, Cardigan, GR 22/73-97-, alt 90m, February 1994. Confirmed F Rose. New to Cardigan.

S P Chambers

*Physcia aipolia*: on west side of ironstone headstone (dated 1717), Quainton church, VC 24, Buckingham, GR 42/75-20-, August 1994. Second saxicolous churchyard record for the vice-county of this normally corticolous species. It was first recorded by H J M Bowen at Great Missenden, GR 42/90-01- (see Bowen H J M, *Sites with Interesting Lichens in Berks Bucks and Oxon*, Nature Conservancy Council, 1988), and refound in 1991 (T W C et al). The species also occurs on ironstone headstones at Farthingstone, GR 42/61-55- (T W C, 1985), and Tiffield, 42/69-51- (T W C, 1992), in VC 32, Northampton.

T W Chester

*Physcia clementei*: adjacent to the above species on west side of ironstone headstone (dated 1717), Quainton church, VC 24, Buckingham, GR 42/75-20-, August 1994. First vice-county record for this more normally coastal species. It was previously recorded on early 18th century ironstone headstones at Moreton Pinkney, GR 42/57-49- (K Palmer, 1991), and Helmdon, GR 42/59-43- (K P & T W C et al, 1993), VC 32, Northampton.

T W Chester

*Polyblastia agraria*: on crumbling wall tops and rubble of disintegrating wheel-pits at three old metal mines: Dylife mine, VC 47, Montgomery, GR 22/86-84-, alt 360m; Fairchance, VC 46, Cardigan, GR 22/74-68-, alt 330m; Llety-ivan-hen, VC 46, Cardigan, GR 22/69-84-, alt 260 m, 1993. Confirmed O L Gilbert. Also on top of sea-cliff with *Rinodina conradii*, Clarach, VC 46, Cardigan, GR 22/58-84-, alt 30 m, February 1994.

S P Chambers

*Polysporina lapponica*: on slate on top of wall at disused iron-mine, Wheal Eliza mine, Simonsbath, VC 5, South Somerset, GR 21/78-38-, alt 300 m, 1994. New to SW England.

B J Coppins and A M O'Dare

*Psilolechia clavulifera*: on end of hanging rootlet, on soil bank in woodland, Coedmor, VC 46, Cardigan, GR 22/19-43-, March 1994. Confirmed B J Coppins. New to Cardigan.

S P Chambers

*Psilolechia leprosa*: sterile on wooden pegs securing copper lightning conductor, Olney church, VC 24, Buckingham, GR 42/89-51-, May 1994 and fertile in similar position on Somerby church, VC 55, Leicester, GR 43/77-10-, May 1994. First lignicolous records of this increasingly recorded churchyard saxicolous species.

T W Chester

*Rhizocarpon caeruleoalbum*: on steep south-facing spoil, with *R. cinereovirens*, Geufron mine, VC 47, Montgomery, GR 22/88-85-, alt 300m, September 1993. Determined A Fryday. New to Wales.

S P Chambers

*Rhizocarpon cinereovirens*: recorded from seven old metal mines in mid-Wales. First record from Abbey Consols, VC 46, Cardigan, GR 22/74-66-, alt 190 m, April 1993. Determined A Fryday. New to Wales.

S P Chambers

*Rhizocarpon expallescens*: recorded from eight old mines in mid-Wales. First record from Penlanfach mine, VC 46, Cardigan, GR 22/73-70-, alt 300 m, May 1993. Confirmed A Fryday. New to Wales.

S P Chambers

*Rinodina flavosoralifera* Tønsberg (1992): over mosses on *Quercus* trunk in valley bottom, Hawkridge Ridge Wood, Barle Valley, VC 5, South Somerset, GR 21/88-29-, 1994. New to British Isles. Confirmed T Tønsberg. Resembles *R. griseosoralifera*, but the soralia are brownish, reacting C+ orange (arthothelin and thiophanic acid).

B J Coppins and A M O'Dare

*Stenocybe septata*: on smoothish bark of young, mature *Fraxinus*, Ebbor Gorge, VC 6, North Somerset, GR 31/52-48-, 1994. Apparently a new host for this species.

B J Coppins

*Stereocaulon glareosum*: recorded from four metal mines in VC 46, Cardigan and VC 47, Montgomery. First find at West Nantycreiau mine, VC 46, Cardigan, GR 22/79-60-, alt 440 m, June 1993. Confirmed B J Coppins. New to Wales.

S P Chambers

*Strangospora microhaema*: closely associated with *Gyalideopsis muscicola* over *Hypnum* sp. at base of large *Fraxinus*, Cwm Llyfnant, VC 46, Cardigan, GR 22/71-97-, alt 80m, June 1994. Confirmed B J Coppins. New to Wales.

S P Chambers

*Thelocarpon impressellum*: over limestone chippings with *Moelleropsis nebulosa*, *Vezdaea retigera* and on decaying *Peltigera rufescens*, Cwm Rheidol mine, VC 46, Cardigan, GR 22-73-78-, alt 80m, June 1993. Confirmed B J Coppins. New to Cardigan.

S P Chambers

*Tremella coppinsii*: on thallus of *Platismatia glauca* on *Salix*, Ashcombe Plantation, Simonsbath, VC 5, South Somerset, GR 21/77-39-, 1994. New to S W England.

B J Coppins and A M O'Dare

*Usnea wirthii*: on *Salix*, Black Torrington, Holsworth, VC 4, North Devon, GR 21/46-05-, April 1972. This specimen collected by D L Hawksworth, IMI

165027, was found amongst a collection of Usneae including *U. subfloridana*, *U. cornuta*, *U. rubicunda*, *U. glabrescens* and *U. florida*. It represents an extension of the range of this lichen which has only recently been recognised for the UK (previously known from W Cornwall and Pembrokeshire) and indicates that it should be looked for in similar localities in the South West.

J C David

*Xanthoria fulva* (Hoffm.) Poelt & Petutschig (1992): on oak (*Quercus petraea*), Riesty Bank 1.5 km south of Harwood Dale village, Scarborough, VC 62, North-East York, 44/96-94-, August 1994, collected S Kondratyuk, C Wilson, M Dowlen & N Turland, (specimens in BM). Also on *Ulmus*, Lanerset, Staplegrave, VC 5, South Somerset, GR 31/21-26-, October 1914, collected W Watson (specimens in BM). New to the British Isles.

S Ya Kondratyuk

*Xanthoria ulophyllodes*: on aged *Ulmus* in parkland Addlestrop, Stow-on-the-Wold, VC 33, East Gloucester, GR 42/24-26-, 18 November 1972, collected P W James and R H Bailey (specimen in BM). Also on well-lit boles of aged *Ulmus* on field margins, Abbotswood, Stow-on-the-wold, VC 33, East Gloucester, GR 42/17-26-, November 1972, collected P W James and R H Bailey (specimen in BM). Also on buttress root at the bases of ancient *Ulmus* in pasture, Debden Park, Steeple Bumstead, VC 19, North Essex, GR 52/54-33-, 28 April 1973, collected P W James, F Rose, and T D V Swinscow (specimen in BM).

S Ya Kondratyuk

*Zamenhofia rosei*: on four old *Quercus*, two in neglected pasture woodland and two on old riverside trees, on the edge of a former coppice, Langley Wood NNR, VC 8, South Wilts, GR 41/22-21-, and 41/23-21-, January 1994. The second record outside the New Forest in Britain.

N A Sanderson

## LITERATURE PERTAINING TO BRITISH LICHENS - 16

*Lichenologist* 26(2) was published on 17 May 1994, and 26(3) on 15 August 1994.

Taxa prefixed by \*are additions to the checklist for Britain and Ireland. Aside comments in square brackets are mine.

ALSTRUP, V, CHRISTENSEN, S N, HANSEN, E S & SVANE, S 1994. The lichens of the Faroes. *Frodskapparit* 40: 61-121. The new combination *Micarea paratropa* (Nyl.) Alstrup is the correct name for *M. subviolascens*, and *M. subconfusa* (Nyl.) Alstrup is said probably to be the name for *M. submoestula*.

BURGAZ, A R, ESCUDERO, A & AHTI, T 1993. Morphometric variation in primary squamules of *Cladonia foliacea* and *C. convoluta*. *Nova Hedwigia* 57: 231-238. Two ratios involving measurements of the perimeter and area of squamules were found to be useful in distinguishing problematical specimens.

COLLIN, P & LAURON, A 1994. *Omphalina peltigerina* (Peck) P. Collin, champignon lichenicole nouveau pour la France. *Bull. Soc. Mycol. France* 110: 11-16. The authors suggest (with reservation) that *Omphalina peltigerina* (Peck) P. Collin (1994) is the correct name for *O. cupulotoides* P.D. Orton.

COPPINS, B J 1994. *Micarea submilliaria* (Nyl.) Coppins, the correct name for *Micarea subleprosula* (Vezda) Vezda. *Graphis Scripta* 6: 37-38. *Lecidea submilliaria* Nyl. (1869) is shown to be an earlier name for *M. granulans* and *M. subleprosula*.

COPPINS, B J 1994. Foliicolous lichens in Scotland. *BSS News* 63: 4-5. Reports of *Fellhanera* species and *Scoliciosporum curvatum* in Scotland.

CULBERSON, W L, CULBERSON, C F & JOHNSON, A 1993. Speciation of the *Ramalina siliquosa* complex (Ascomycotina, Ramalinaceae): gene flow and reproductive isolation. *Amer. J. Bot.* 80: 1472-1481. The *Ramalina siliquosa* complex on maritime cliffs in western Europe is differentiated into 6 chemotypes, which are sharply zoned within the supralittoral zone. Overall, the chemotypes are highly reproductively isolated, and most of them can be regarded as ecologically differentiated sibling species.

DALBY, D H [K] & DALBY, C 1994. Lichens from Berriedale, Hoy. *Bull.*

*Orkney Field Club* 1994: 22-23. Reports several additions, including some Lobariion relict species on birch and rowan, from this northerly, isolated woodland.

DENNIS, R W G 1994. Lichens on Scottish grasses. *BSS News* 62: 18-19. *Bacidia chloroticula* is reported from the Mc Cormac Isles in the Sound of Jura, growing on the faded, basal leaves of *Deschampsia caespitosa*.

HAFELLNER, J 1994. On *Biatoridium*, a resurrected genus of lichenized fungi (Ascomycotina, Lecanorales). *Acta Bot. Fennica* 150: 39-46. The genus *Biatoridium* J. Lahm (1860) is resurrected for *B. monasteriense* J. Lahm (1860) (syn. *Biatorella monasteriensis*) and *B. delitescens* (Arnold) Hafellner (1994) (syn. *Strangospora delitescens*).

HARADA, H 1993. A taxonomic study on *Dermatocarpon* and its allied genera (Lichenes, Verrucariaceae) in Japan. *Nat. Hist. Res.* 2: 113-152. On the basis of a study of the 8 species occurring in Japan, the genus *Catapyrenium* is divided into 4 genera. Only 3 European species are involved: *C. cinereum* and *C. psoromoides* are retained in *Catapyrenium* s. str., whereas *C. squamulosum* is transferred to *Dermatocarpella* Harada, as *D. squamulosa* (Ach.) Harada. [The characters used (morphology of thallus, perithecia and pycnidia) need to be tested against a wider range of species; some species seem not to fit into this new arrangement, e.g. *C. waltheri*.]

HAUGAN, R & TIMDAL, E 1994. *Tephromela perlata* and *T. talayana*, with notes on *T. aglaea* complex. *Graphis Scripta* 6: 17-26. *Lecidea crombei* Nyl. (1868) is confirmed as a synonym of *Tephromela aglaea*. *T. aglaea* is shown to have 4 chemotypes, but only one is so far reported from the British Isles.

HILL, D J 1994. The succession of lichens on gravestones: a preliminary investigation. *Cryptogamic Botany* 4: 179-186. This study includes data on 104 species on 94 gravestones of different age classes in the west of England.

ING, B 1994. The phytosociology of myxomycetes. *New Phytologist* 126: 175-201. Includes reference to several myxomycetes that are closely associated with lichens.

LUMBSCH, H T, FEIGE, G B & SCHMITZ, K E 1994. Systematic studies in the Pertusariales I. Megasporaceae, a new family of lichenized

ascomycetes. *J. Hattori Bot Lab.* **75**: 295-304. *Megaspora verrucosa* is shown to be not related to *Aspicilia*, but closer to *Pertusaria*, and a new family in the Pertusariales is erected to accomodate it.

KÄRNEFELT, I, THELL, A, RANDLANE, T & SAAG, A 1994. The genus *Flavocetraria* Kärnefelt & Thell (Parmeliaceae, Ascomycotina) and its affinities. *Acta Bot. Fennica* **150**: 79-86. This new genus is introduced to accomodate *F. cucullata* (Bellardi) Kärnefelt & Thell (syn. *Cetrariacucullata*) and *F. nivalis* (L.) Kärnefelt & Thell (syn. *Cetraria nivalis*).

MAARL, E van der (ed) 1993. *Ecosystems of the World 2A. Dry Coastal Ecosystems: Polar Regions and Europe*. Amsterdam, London, etc.: Elsevier. Pp. 600. An important reference book for 'maritime lichenologists'; two chapters are important for British workers, even though lichens get only scant mention. Chapter 14 'Dry coastal ecosystems of Britain: dunes and shingle beaches', by L A BOORMAN (pp. 197-228). Chapter 15 'Dry coastal ecosystems of Britain: cliffs', by A J C MALLOCH (pp. 229-244).

ORANGE, A 1994. Lichens of Glamorgan. In WADE, A E, KAY, Q O & THE NATIONAL MUSEUM OF WALES. *Flora of Glamorgan* [London: HMSO]: 249-271. Increases the number of lichens recorded for the county (VC 41) from Wade & Watson's 1936 total of 324, to 518 (plus 38 non-lichenized species). The 10 km grid records for each species are provided, together with some brief habitat notes.

SCHMITZ, K E, LUMBSCH, H.T & FEIGE, G B 1994. Systematic studies in the Pertusariales II. The generic concept in the Pertusariaceae (lichenized Ascomycotina). *Acta Bot. Fennica* **150**: 153-160. The distinction between *Ochrolechia* and *Pertusaria* is based on the amyloidity of the hymenium and the outer wall of the ascus, and on ascospore structure. Chemical characters can be useful also, but some overlaps do occur, so that sterile species remain difficult to place with certainty. *Pertusaria xanthostoma* is transferred to *Ochrolechia* as *O. xanthostoma* (Sommerf.) K. Schmitz & Lumbsch.

SEAWARD, M R D 1993. Lichenology. *Trans. Lincs. Nat. Un.* **23**: 92-93. Lists new records for Lincolnshire, and provides cartographical interpretations of the current state of recording in the county.

SEAWARD, M R D 1993. Lichens and sulphur dioxide air pollution: field studies. *Environ. Rev.* **1**: 73-91. A detailed review of modern developments, together with some interpretations of mapping data; national 10km grid

maps for British species include *Lecanora conizaeoides*, *Parmelia laciniatula*, and *Ramalina farinacea*.

SEAWARD, M R D, HENDERSON, A & EARLAND-BENNETT, P M 1994. Lichen flora of the West Yorkshire Conurbation - supplement V (1991-93). *Naturalist* **119**: 57-60. The improved status of lichens within the conurbation during the past 21 years is reflected by falling air pollution levels. However, many of the new records also reflect an increased attention by recorders to 'neglected habitats', especially those found in urban wasteland. The total taxa count for the area is now 350, with 217 being recorded during 1967-1993.

TØNSBERG, T 1994. *Chrysotrix flavovirens* sp. nov. - the sorediate counterpart of *C. chrysophthalma*. *Graphis Scripta* **6**: 31-33. \**Chrysotrix flavovirens* Tønsberg is newly described for what the *Flora* (p. 188) refers to as 'an unnamed entity' that is '± continuously sorediate and only rarely fertile'.

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