

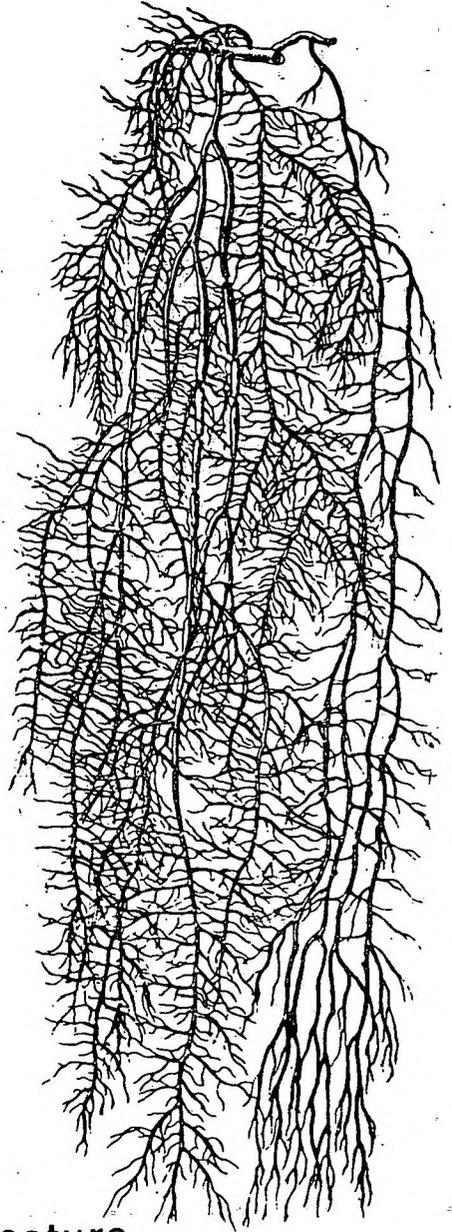
No. 50

Summer 1982

**BRITISH
LICHEN
SOCIETY
BULLETIN**

PELTIGERA

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Lichens and litmus

While travelling through Europe this year, I had the opportunity to visit the firm in the Netherlands that produces litmus from lichens. Since Johnsons of Hendon are no longer in business, the production of litmus in Britain has ceased, and since they were the only competitors, this company in Holland is probably the only company now in the western world that produces litmus from lichens. They suspect that some may be produced in Russia for Soviet and Eastern Block countries, but they have no direct evidence of this. Although it is possible to produce litmus synthetically, the vast majority of the litmus we use today comes from lichens and is manufactured by this company in Holland.

The plant is housed, at the moment, in the end of a very old wooden warehouse (Fig.1), though there are plans to develop the site and move the litmus plant into a new building. The small scale production keeps one person employed more or less throughout the year. Obviously the scale of production is hardly economic, and this side of the business is unable to make much profit, but the firm has a coveted reputation for litmus production, gained over the past 300 years.

The methods they use are crude by modern day standards, although perfectly adequate, but the technique is different from the one used in the past by Johnsons of Hendon and described by Richardson in "The Vanishing Lichens" (1975). The lichen, pure Roccella spp., is stored loosely in jute sacks each containing approximately 10kg lichen, in a dry store room. At present, they use between 700 and 1,400kg lichen annually, and produce about 1 to 2 tonnes of litmus each year. Although the sales of litmus have decreased over the years there is still a demand which will continue to be met.

The lichen is emptied from the sacks into the hopper (Fig.2) which feeds it to a grinding machine where it is crushed into a fine powder. From here it passes into another machine where it is mixed with other chemicals to form a crude litmus

compound. Although the machines appear crude and outmoded and the surroundings seem dark and old fashioned, one of the two mixing machines was installed only five years ago and is perfectly efficient. The crude litmus is removed from the machine, and laid out on trays (Fig.3) where it is cut into small blocks. These are left to dry in an adjacent room at about 30°C. Before sale the crude litmus is crushed, into either granules or powder according to demand.

It was not possible for the company to disclose the exact recipe they use for the process, although the technique is well documented (in broad terms) in chemical text-books and encyclopedias, and neither were they in a position to inform me of the exact whereabouts of their lichen supply - this being, in effect, their final company secret. In fact they feel there may come a time when they have a problem with their source of lichen supply. Their last purchase was enough to last for 3 or 4 years and was mainly collected by school children. However, next time they may well be looking for advice on alternative areas of supply. Hopefully, with the expertise available in our Society, and the number of well travelled lichenologists to tropical areas, we should be in a position to be of the same kind of assistance to these commercial enquiries as we are to those regarding conservation.

I am grateful to Dr. J.P. Stuurman for showing me round the family firm. The trip was made possible by a Winston Churchill Travelling Fellowship.

TIM MOXHAM.

FIG. 1

The wooden building containing the litmus plant. The window on the far right is the one seen in Fig. 2.

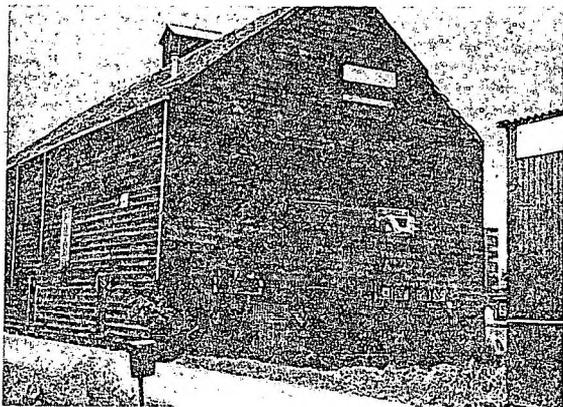


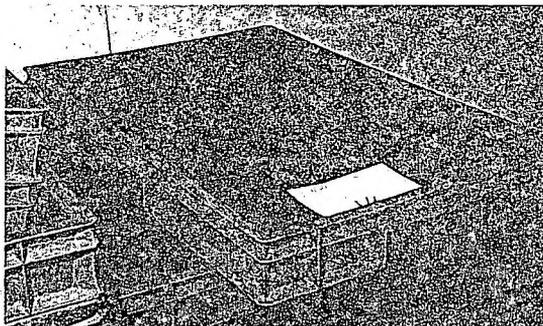
FIG. 2

The lichen passes through the hopper into the machine below, where it is crushed to a fine powder.



FIG. 3

The litmus blocks are left in these trays to dry at a temperature of about 30°C.



Summer Field Meetings 1982

Due to difficulties encountered by members when attempting to secure transport to, and accommodation in, the Algarve during the period proposed for the visit, this meeting has been cancelled. To help fill the gap this has left in our programme the following short field meetings have been arranged.

DUBLIN, Ireland, 9-11 July 1982

This field meeting will leave from the Department of Botany, Trinity College, Dublin, on Friday, 9 July at 8.30 a.m. A variety of sites will be visited, including woodlands and graveyards. On the Friday and Saturday evenings, the party will stay at inexpensive accommodation near Kilkenny. A return will be made to Dublin to catch the Sunday evening ferry or airport bus. Immediately prior to the field meeting the Society for Experimental Biology will be holding a symposium in Dublin on the experimental biology of lichens and bryophytes. BLS members are welcome to attend all or part of this meeting at which eight papers dealing with lichens will be delivered. Booking forms for both meetings can be obtained from Professor D.H.S. Richardson, School of Botany, Trinity College, Dublin 2 to whom they should be returned as soon as possible.

Day excursion to SUFFOLK, 4 September 1982

A day excursion to Suffolk will be held on Saturday 4th September 1982, to look at the ancient woodlands of Staverton Thicks and saxicolous communities in Suffolk churchyards. Meet at Wickham Market railway station at 11.15 a.m. A train leaves Liverpool Street at 09.30 a.m., change at Ipswich to the Lowestoft pay train departing at 10.48 and arriving at Wickham Market at 11.14 a.m. Bring lunch, a cold drink can be obtained at the local pub (the last time I was there, beer was dispensed direct from wooden barrels). Gum-boots not essential. A return train to London leaves Wickham Market at 17.09, however, it might be more advantageous to get the local train from a different station. Those wishing to take part please contact Christopher Hitch, The Whin, Snape, Saxmundham, Suffolk IP17 1QY indicating

whether you will have a car and any spare seats.

Day excursion to the NEW FOREST, 25 September 1982

A day excursion to the New Forest will be held on Saturday 25 September 1982. The rich epiphytic communities in Brockenhurst Woods and Queen Bower will be examined. Meet at Brockenhurst Railway Station 11.00 a.m. with a packed lunch. Members intending to take part please contact Vince Giavarini, 67, Parkstone Avenue, Parkstone, Dorset.

Day excursion to RICHMOND PARK, 16 October 1982

A joint meeting with the British Mycological Society will be held on Saturday 16 October 1982 in order to study lichens and fungi in Richmond Park. This excursion should be of special interest in view of the return of lichens to London habitats. Meet at Richmond Gate, Richmond Park, grid TQ 185737 at 14.00. Leaders: P.W. James and J.R. Laundon.

Autumn Field Meeting, LLANGOLLEN, Denbighshire, Thursday evening 14 to Monday afternoon 18 October, 1982

Llangollen, situated in one of the most beautiful valleys in Wales, has been chosen for the Autumn Field Meeting. The surrounding area, which has not received serious attention from lichenologists in the modern period, has sufficient top-grade habitats to warrant a four-day meeting. In particular the extensive Carboniferous Limestone cliffs of Eglwyseg Mountain, lead mines at Minera and natural outcrops of slate will be examined. There are two old parklands nearby and the NCC have pointed out several oak woods which should repay study. The Bryn Derwen Hotel has been chosen as the headquarters; starts will be made from here daily at 9.30 a.m.

Members should make their own bookings, then inform Oliver Gilbert stating where they will be staying and if they are likely to have spare car seats. It is hoped to arrange a private room for the evenings so that microscope work will be possible.

Accommodation

Bryn Derwen Hotel, Abbey Road, Llangollen, Clwyd. Tel:0978-860583
£16.50 dinner, B & B single, £15.50 if sharing a room.

The North Wales Tourism Council, Town Hall, Llangollen, Clwyd, Tel: 0978-860828 operate an accommodation service and can arrange alternative lodgings for you varying from farm house to guest house to three-star hotel. There is a Youth Hostel in the town.

OLIVER GILBERT and PETER LAMBLEY.

Forthcoming Meetings

Field meetings planned for 1983 include an eight-day spring meeting to the islands of Coll and Tiree; details in the next Bulletin.

To mark the twenty-fifth birthday of the BLS the Annual General, Lecture and Exhibition Meeting 1983 will be enlarged and known as the 'Jubilee Meeting'. On Friday 7 January a symposium will be held at the British Museum (Natural History) followed by a celebration dinner in the evening; events on the Saturday will include the AGM, lecture and exhibition meetings. Full details in the next Bulletin.

Report on Annual General, Lecture and Exhibition Meetings 9 January 1982.

Forty-one people braved the heaviest snowfall seen in London for several years to attend the A.G.M. Reports of the Officers took longer than usual, a reflection of their particularly high level of activity in the past year. Mark Seaward was elected President, Jack Laundon Vice-president and F.S.Dobson, D.J. Galloway and T.H.Moxham will be joining Council.

Forty-eight people arrived in time for the afternoon Lecture Meeting on 'West European Forests'. In the first talk Francis Rose, drawing on his vast experience, outlined the present state of epiphytic vegetation over much of Europe. He told us that in the north of the area an intact epiphytic flora can now only be found in sheltered upland valleys as on high-ground it has been altered by acid rain, while changing forestry practices are impoverishing it at lower levels. Further south, in areas which experience a summer drought, air pollution

appears to have less effect than in more humid regions. A Xanthorion community replaces Lobarion as the forest climax at low levels in the Mediterranean and zoned above the Lobarion (in N. Italy) is a montane community rich in fruticose species. Dr. Rose hinted at provisional details of a Central Montane Index of Ecological Continuity, a Mediterranean Montane I.E.C. (rich in Pannariaceae) and one to cover Denmark and the east of Scotland. Rarely has the society been treated to such an authoritative discourse.

Oliver Rackham told us about the evidence he is gradually accumulating that the medieval pattern of woodland, which can be established from documentary sources, was largely established during the Roman Period. The medieval woods were very shady and lacked trees over about 100 years old so possibly in the days prior to air pollution certain lichens were less light-demanding. He produced evidence for this in the shape of a coppice pole retrieved from an old timber framed building in Suffolk which had a close mosaic of at least eight lichens preserved on its smooth bark. The wood-pasture system of producing underwood on pollards, which was practiced on commons (pre 800), in parks (since c.1045) and in forests (since c.1070), may have provided a major refuge for many lichens in the Middle Ages, though even these sites were quite heavily managed with grazing which kept them open and the trunks unshaded.

In the last lecture, Paul Harding introduced us to the rich fauna of over-mature trees and dead wood. A number of rare beetles today occur mainly in association with old trees in ancient woodland and wood-pasture. These insects which display a very narrow ecological amplitude are not in the slightest affected by air pollution so can be used to help locate primary woodland relics in areas where lichens are absent. For example the best localities for these insects are 1. New Forest, Windsor Park, 2. Epping Forest, Sherwood Forest, Moccas Park, Brampton Bryan Park.

In the discussion which followed the three papers it was pointed out that in other parts of the world fire and hurricanes bring an untimely end to most trees, so the large old specimens we find so good for lichen tend not to be present.

At the Exhibition Meeting it was difficult to discover many lichen specimens among all the paper on display. The following members contributed :

- BROWN, D.H. Scanning electron micrographs of Hydrothyria venosa together with a specimen of the lichen.
- FOX , B. Colour photographs taken at the autumn field meeting, Duns, Berwickshire.
- GILBERT, O.L. Protective, stone-breaker's goggles purchased by Ursula Duncan in 1946 for lichen field work.
- RICHMOND PUBLISHING COMPANY. Bookstall displaying most recent publications on lichens in many languages.
- SEAWARD, M.R.D. Lichen Atlas - uncorrected proofs.
- WALKER F.JOY A major exhibit titled 'Recent studies on the lichen Neuropoga'.
- WALKER, F.JOY Album of colour photographs taken at the Bristol workshop meeting.

Grapevine

In an intriguing sentence in the Taoro Park report from the Teneriffe Field Meeting (Lichenologist 41:91-92), the description of the Grand Hotel Humboldt extends to a romantic fictional reference, M.S. Rawson's Enchanted Garden (1907). Grapevine laps up such things! All too often in the face of financial pressures and in the name of intrinsic scientific relevance, such headier items of information meet the excisive editorial pen. Victorian and Georgian scientific journals, more expansive in mood and capability, were less ruthless in the censorship of material concerning socio-cultural aspects of their Societies' and their authors' doings. Inevitably the attention of the historian and others has been, is and will be directed upon such aspects of scientific life in Britain. If economic straitnesses and scientific rigour find journals (especially those of Societies lacking satisfactorily vocal

Bulletins) too ready to red-pencil all such curiosa and personalia, such an enquirer may well find little beyond a big blank in the way of such data from our own decade, a poverty compounded by our comparative sterility as keepers of diary and notebook and our frequent resort to the telephone rather than the letter. The communication of such aspects is, Grapevine avers, essential for the full-blooded life of a Society, nourishing and nourished by the activities of members at all levels. Our forebears have fed us well. We should beware of doing less for ourselves and our successors.

Auntie Agony of BBC4 is still tossing her distraught anti-lichen locks. On April 24th this year Enquire within advised a stricken listener how to divest an asbestos roof of unseemly lichen. Slime remover was the bargain-of-the-day recommendation. Auntie thus managed to undo any benefit our chosen plants might have derived from the Guardian's sympathetic 'front-page' story on January 30th extolling dung-wash as an encouragement of early lichen colonisation on virgin brick. Mind you, Auntie did grudgingly own that there are some people who appear to take pleasure in such growths - in the tone she reserves for allusion to all sado-masochistic practices. After such programmes Grapevine finds it helpful to utter the imprecation, 'Stone-bloom'. This invention of the sculpture critic, Adrian Stokes, has been nicely defined as 'lichens and weathering and the soft attrition of human hands'.

Continuing to mutter 'Stone-bloom', Grapevine now lists a few vernacular lichen names from a well-intentioned (!) paper in the recent literature: Parmelia caperata, Musky insignificant lichen; Parmelia saxatilis, Insignificant rock lichen; Parmelia sulcata, Insignificant plough-furrow lichen; Parmelia physodes, Insignificant wind lichen; Phycia adscendens, Rising intestine lichen. With friends like this, who needs enemies, or even Linnaeus! No wonder that a note in D.C. Lindsay's Lichens of the Birmingham region (1981) Proc. Bgham. Nat. Hist. Soc. 24:125-152 (see p.133) suggests the possibility that lichens there are taking to drink.

- "Lecanora conizaeoides Found throughout Birmingham, including the city centre. Very common on worked wood and especially

frequent on wooden furniture repeatedly inundated by beer in gardens of public houses. Apparently not only pollution tolerant but also alcohol tolerant."

VINIFERA.

Country Diary - 4 : Lichenological detective work

My investigations of the corticolous lichen flora in lowland Britain have often taken on the character of detective work, particularly when trying to find localities which might still contain relics of ancient woodland.

In 1967 while browsing through Edward Jenner's Flora of Tunbridge Wells (1842) I came across an account of the lichens of Eridge Park in East Sussex, a site which had been a deer park since about 1150 A.D. This book contains a mouth-watering list of lichens to be found in the park at that time, including all four Lobaria spp., Sticta limbata, Parmeliella plumbea, Nephroma laevigatum, Pachyphiale cornea and Parmelia crinita. Surely I thought all these must be long extinct because at that time there were no modern reports of any of them from southern England. However, I knew that parts of Eridge Park had many old trees and fragments of ancient woodland so, accompanied on several occasions by friends, I began a careful survey. Some species, it is true, seem to have gone; but Lobaria pulmonaria, L. laetevirens, Nephroma laevigatum, Pachyphiale cornea, Parmelia crinita, and even Parmeliella plumbea, were still present on several ashes, field maples or oaks, while other species unknown to Jenner, such as Lecanora quercicola, Pertusaria velata and Thelopsis rubella, were discovered; in all at the present time some 176 lichen taxa still occur on trees or lignum in the venerable Park, and including soil and rocks, there are 193 taxa.

These discoveries conceived in us an enthusiasm for old parks, especially those of early medieval origin, and soon it was found that there were quite a number of such sites still left in the less-polluted parts of lowland Britain, some few even richer than Eridge Park. I began to look at other old books; one was

The Botanist's guide Through England and Wales, by D. Turner and L.W. Dillwyn (1805), which contains numerous old records of lichens, county by county. I turned to County Durham: Lobaria pulmonaria, L. laetevirens and Pachyphiale cornea were all recorded from "Sheeplea Wood near Egleston". At first I could not locate this site, until I realised that it must be the wood below Shipley Farm, in the gorge of the River Tees above Barnard Castle. In June 1969, accompanied by two friends, I was at last able to visit this beautiful wood on Whin Sill rocks. We soon located the two Lobaria species on ancient ash trees, and a further visit with the BLS refound the Pachyphiale and much else; at present some 103 epiphytic lichens are known from this site.

That, however, is not quite the end of this story of Sheeplea Wood, as it also proved very rich in vascular plants. Today these Tees Gorge Woods are classified as of national importance (Grade 1) in the Nature Conservation Review of the NCC; perhaps they might still be unknown, or even destroyed, if a fanatical lichenologist had not dipped into a book of 1805 - and had a hunch.

FRANCIS ROSE

Proposed definition of the term LICHEN

Members of the International Association for Lichenology are being canvassed by their Terminology Committee and urged to vote as to which of five definitions of the term 'lichen' they feel is best. This is necessary because no agreement was reached on a formal definition at the Sydney Congress in 1981. I would recommend to their Committee a little poem which once appeared in Tea Phytologist that notorious aperiodical production of the research students at the Cambridge Botany School.

'Some algae met some fungi,
Together went a hiking,
The fungi were hungry
The result was a lichen.'

The Lean Years - 1

(To celebrate the Silver Jubilee of the British Lichen Society, due 1 February 1983, the Bulletin has invited four lichenologists who were active in the period 1930-1955 to write short articles outlining who were the prominent figures and what it was like working on lichens in the lean years before the BLS was formed. The contributions will be spread over 3 issues, the first being by Eustace Jones - Ed.)

Before 1947 I spent considerable time trying to obtain a working knowledge of British lichens. The Cambridge botany course offered no assistance in acquiring field-knowledge of them; indeed they were barely mentioned. The only collection in the University herbarium was Mudd's, historically important, but of no use to the learner.

In those days a really practical manual was lacking. Annie Lorraine Smith's 'Handbook' required perfect fruiting material for the initial stages in reaching the genus. Her 'Monograph' was already rare - especially the first volume. The secondhand set I acquired in the late '30's is autographed by Annie, who had presented it to Grace Latham. I found it exasperating to use. Not only were the illustrations hopelessly inadequate (one species per genus for Cetraria and Cladonia) but descriptions were often unhelpful, e.g. 'distinguished from the preceding species by its colour'; the colour of neither species having been mentioned! Much later someone (probably Fred Sowter) put me onto Boistel's 'Nouvelle flore des lichens pour la détermination facile des espèces sans microscope et sans réactifs' (my italics), Paris, 1896. Still obtainable and cheap, it worked. Writers of floras should bear it in mind. I remember Charles Elton saying 'I am slowly beginning to learn how to do taxonomic work; start by getting the oldest account of the group that you can.' His words concerned insects, but might be applied to lichens; without going back as far as Leighton, whose grandiose vocabulary is formidable. The early people worked with easily observed superficial characters; they put together species of similar general appearance and habit, e.g. Sphaerophorus, Stereocaulon, Cladonia. Later classifications rely more and more on obscure structural characters.

fructifications, spores etc. The key for easy identification is not a key to families, to genera and then to species, but to groups of species that look alike.

My first personal contact, the surest way to progress, was with Ivan Mackenzie Lamb at the British Museum, who named many lichens I collected in the Cairngorms. Later I came to know Walter Watson who was very helpful, particularly in my work on the effect of air pollution on lichens. My only time in the field with him was not very profitable to me; during a winter meeting of the British Ecological Society in Oxford I conducted a party through Bagley Wood, a bus taking us to the top end, and picking us up (everybody, that is, except Watson) at the bottom. Inevitably he had stopped to look at some lichens, and got lost. Dusk increased my anxiety as he was said to have a poor sense of direction. Efforts to find him failed. Fortunately he made his own way home!

It was only after 1947 when I had stopped working on lichens that I came to know R. Burn. I then lived in Walton Street, near the Oxford University Press, where he was a Classical Proof Reader. He became a familiar sight, cycling slowly past, his stubby grey beard practical rather than decorative, jacket and trousers shabby and down-at-heel boots. I gather he led an austere batchelor life in a room lined with piles of books, and remembered the exact place of each.

I came to study the relation between lichens and industrial smoke when I was asked to investigate a large oak wood (Bishop Wood, north-west of Selby, Yorkshire). Acquiring it after clear-felling the Forestry Commission made unsuccessful attempts to replant with oak and sycamore. Severe late frosts were the fundamental problem, but some local staff believed smoke from industrial areas was the culprit - an explanation with the great attraction that nobody could blame the staff! I needed some measure of smoke incidence around Bishop Wood for comparison with smoky districts with thriving trees. It seemed the lichens on roadside trees might provide it. Thus on a bicycle journey from Ludlow through the Black Country to Oxford I stopped at suitable groups of roadside trees to assess the cryptogam-cover of boles. We were still at war, and such behaviour verged on

the suspicious, but the police intervened only once, to ask me to look out for some escaped German prisoners. I was astonished at the regular gradations in lichen cover, revealed by even the simplest forms of assessment.

I started to study bryophytes and lichens, being convinced that a plant ecologist needed to recognise the common species if he was not to overlook important indications of the environment and of the status of his communities. Although circumstances led to my studying hepatics rather than lichens, I retain this conviction. Had the Lichen Society existed 20 years earlier I should certainly have profited greatly from it. I hope it will be as successful during its second twenty-five years as during its first.

EUSTACE JONES.

Crossing Off Mapping Cards

It has long been the custom when using mapping cards to score through the name of the species either with a diagonal line, which could sometimes refer to the species above or below, or by a bold horizontal stroke in which case the name often becomes illegible. I would recommend to members a method I have used for some years. I underline the name of the plant recorded, and curve it upwards at the right-hand end so that there is no doubt as to what species is meant.

Additional information can be fitted onto the card by using different coloured underlinings to indicate different dates, though of course, this data is not reproduced on photocopies. Also, there is room at the end of each name for code letters which can be used to indicate, for example, saxicolous substrates (Sx); terricolous substrates (T); or genus of tree (Q for Quercus, Fx for Fraxinus etc.). Finally if I think other species than those recorded are likely to be found, I place a dot after their names.

Changes in nomenclature will remain a problem until the old cards have been used up and a new one designed. Beware of the ambiguity in Arthonia, A. didyma (0129) the species on the boles of ancient oaks is now A. vinosa, while A. lurida (0145) is what we must now call A. didyma Körber. An excessive number of name changes should not be made on the card, as this can cause problems with the abstraction of data.

LOCALITY
HABITAT
Mixed woodland with rock outcrops.

0024	Acid	0376	slaw	0011	gry	0514	lim
0034	ery	0378	w.oo	0012	ten	0515	rim
0040	sub.aria	0331	-soma	0013	hgr	0506	ery
0040	g	0341	umbr	0017	pas	0841	ten
0046	masc	0366	Bassu plat	0018	put	0843	ten
0048	masc	0368	row	0020	put	0846	ten
0057	amp	0370	rostr	0021	put	0848	ten
0074	masc	0373	Bassu rous	0022	put	0850	ten
0076	masc	0375	Bassu rous	0024	put	0858	ten
0083	masc	0385	masc	0026	put	0856	ten
0087	aria	0388	aria	0027	put	0857	ten
0090	aria	0403	Bull. ric	0029	put	0860	ten
0091	aria	0407	Bull. ric	0032	put	0863	ten
0093	aria	0409	slaw	0033	put	0875	ten
0095	ten	0413	aria	0034	put	0867	ten
0096	rup	0422	aria	0036	put	0868	ten
0098	aria	0424	aria	0038	put	0869	ten
0100	aria	0437	aria	0040	put	0871	ten
0103	aria	0452	aria	0047	put	0876	ten
0106	aria	0457	aria	0048	put	0877	ten
0110	aria	0460	aria	0050	put	0880	ten
0112	aria	0462	aria	0051	put	0881	ten
0115	aria	0465	aria	0051	put	0887	ten
0117	aria	0473	aria	0052	put	0888	ten
0127	aria	0480	aria	0053	put	0894	ten
		0485	aria	0054	put	0898	ten
		0488	aria	0055	put	0900	ten
0131	aria	0493	aria	0056	put	0904	ten
0138	aria	0495	aria	0057	put	0911	ten
0140	aria	0496	aria	0058	put	0918	ten
0145	aria	0498	aria	0059	put	0928	ten
0152	aria	0499	aria	0060	put	0905	ten

FRANCIS ROSE.

Conservation of Woodland Lichens

The report of the BLS Woodland Lichens Working Party, was recently submitted to the Nature Conservancy Council, bringing to a close a very busy period for the persons involved. The BLS now possesses an up-to-date list of all sites known to be valuable for corticolous lichens in Britain and has evaluated their relative importance.

1. Synopsis of Lichen-Rich Woodlands. Lichen-rich woodland occurs in most parts of Britain, however, certain types of

woodland are more promising than others and can be typified using their history and ecological features.

- a) Lowland Parkland usually of medieval origin, often contains fragments of ancient, primary woodland with old trees and Lobaria communities. This habitat reaches its best development in Britain.
- b) Lowland Parkland of Secondary Origin is thought to derive from planting trees in a previously agricultural or treeless landscape. Elms and introduced species such as Walnut are often important, holding communities of the Xanthorion-type.
- c) Oceanic Valley Woodlands occur in the sheltered, frost-free valleys of W. Britain, from Cornwall to NW. Scotland. In these oak/ash woods Lobarion communities rich in lichen genera with blue-green algae are common.
- d) Maritime Woodlands found on shorelines and sea-cliffs, with the trees bent and wind-trimmed from exposure to salt-laden winds. Lichen communities in these woodlands are uniquely developed in Britain; four types can be recognised: i) Oak woods - commonest. (ii) Hazel woodland - Argyll only. (iii) Elm-Ash woodland - rare. (iv) Woodland lichens found on seashore rocks - W. Scotland only.
- e) Upland, Oceanic Oak or Birch Woods in exposed, upland situations in areas of high rainfall. Acid-loving communities containing Parmelia laevigata and Pseudevernia furfuracea are common.
- f) Continental-type Woodlands; these have the "dry" non-oceanic type of Lobarion, similar to that of woods in S. Scandinavia. Lecanactis species are noteworthy.
- g) Southern Lowland Woodlands on base-rich soils usually managed in the past as "coppice with standards" may contain fragments of lichen-rich high forest.
- h) Northern Birchwoods, found mainly in Sutherland where deciduous trees such as oak and ash are rare owing to the cooler climate.
- i) Native Pinewoods; these important relics are now confined to small areas in W. central Scotland. The important

lichen communities in these woodlands contain Alectoria species and members of the Caliciales; those in W.Scotland which are exposed to a more oceanic climate are uniquely developed in this country.

- j) Ash and Elm Woodlands; these trees have a base-rich bark which favours a very diverse Lobarion containing genera with blue-green phycobionts. Such lichen-rich woodland is only known from W. Scotland.

2. How to Recognise a "good" Woodland

It should be apparently by now that the presence of Lobaria in any woodland suggests that it is promising. This genus indicates old, undisturbed trees and that the woodland has never been clear-felled. If lichens with blue-green algae are also present on trees, for example, Pseudocyphellaria, Sticta, Nephroma, Pannaria, Parmeliella, Collema and Leptogium, then the site is becoming very promising. Generally speaking, if the woodland has more than 100 lichen epiphytes, then it is interesting; if the figure reaches 150, the site is exceptionally interesting.

3. The best lichen woodland

Out of 1,700 sites assessed, 1129 were included in the final report. Of these 9 are considered to be Grade 1 (International) and the best examples in Europe of Old Royal Forest, Ancient Parkland and Oceanic Woodland. A further 21 sites are evaluated as Grade 2 (National) being the best examples in Britain of various communities, and a further 58 are Grade 3 (National back up) sites approaching the same quality. These sites, graded 1 to 3 are obviously of prime conservation importance, but grade 4 sites, the best examples of the communities present in a region, are also very important since they may approach grade 3 sites in interest. Sites graded 5 (county) and 6 (local) of which there are large numbers are of special interest to County Naturalist Trusts and similar

bodies. Grade 6 sites are probably the best for teaching or research purposes.

The counties with the most high quality sites are shown below:

	GRADE			
	1	2	3	4
Argyllshire	4	1	5	14
Inverness-shire	1	3	4	5
Cornwall	1	2	-	2
Perthshire	1	1	1	7
Dorset	1	1	1	9
Hampshire	1	-	-	1
Devonshire	-	2	12	7
Ross & Cromarty	-	2	2	1
Merioneth	-	1	3	3
Skye	-	1	1	6
Cumberland	-	-	9	5
Caernarvonshire	-	-	7	5

Work continues, an 8-page Supplement to the report has already been produced.

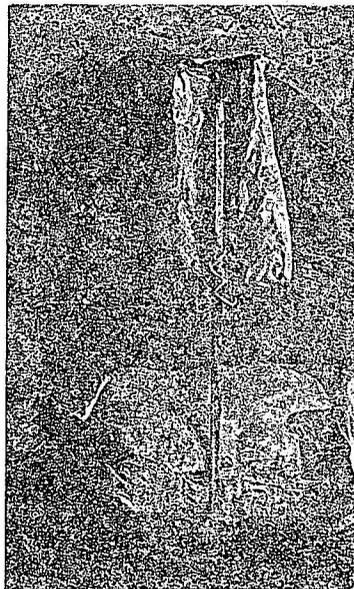
TONY FLETCHER

The use of lichen-scrapers for gathering "Oakmoss"

Following Albert Henderson's note on Georgian lichen-scrapers (Bulletin 49) it is worth mentioning that scrapers are still used for the commercial collection of lichens. The illustration shows a sharp concave scraper with a canvas bag affixed behind and attached to a pole; this was photographed on a recent visit to 'oakmoss' gathering areas in southern Yugoslavia. I should add, in passing, that in a previous article on lichens in the perfume industry (Dragoco Report, 1981/2: 31-39) I inadequately translated the word 'scraper' as 'rake' from a French perfume manufacturer's communication, although in France they do use a hook-shaped implement attached

to a pole to detach lichen from the branches of pine trees.

In Yugoslavia the gatherers handpick the lichen from the trunks of the oak trees up to about head-height, and then use the scrapers to collect the lichen from higher up the trees. The canvas bags are periodically emptied into the large jute sacks (see behind the scraper in the illustration) which are then transported to the packing plant where the lichens are compressed into bales ready for delivery to the perfume manufacturers.



The scrapers are owned by the company who pack and dispatch the lichens and who act as a co-operative for the local peasants who come to the mountain collection stations, sign out for the scrapers on a first-come-first-served basis, and then spend time gathering the lichens. Afterwards they come back to the station, weigh in their lichen, and are paid at the current rate. The rate of pay is terribly low and not nearly enough to earn a living even in the poorer parts of the country; the labour force is therefore casual, mainly older people, out-of-work labourers and women earning 'pin-money'.

TIM MOXHAM.

Secretary's report for 1981

The membership increased again during 1981, rising from 574 to 597. Fifty-eight new members joined during the year, compared with 53 in 1980.

The most important innovation was the introduction of workshops as an alternative to field meetings, two of which were held at Bristol and Bangor in April and August. A field meeting was held at Duns in October. Day excursions took place in the New Forest, Sevenoaks, and on Wimbledon Common, all in conjunction with other societies. Mr. Brightman, Mr. Coppins, Dr. Fletcher, Dr. Hawksworth, Dr. Jackson Hill, Mr. James, Mr. Laundon, Dr. Pentecost, and Dr. Rose are thanked for their leadership. The annual general, lecture and exhibition meeting was again held in London.

Three numbers of The Lichenologist were published, and the Society is considering the possibility of increasing this to four issues in the future. British Petroleum are thanked for financing Albert Henderson's 'Literature on air pollution and lichens' series. Two numbers of the Bulletin were produced; the format has been changed from an A4 newspaper to an A5 booklet, which makes it better for keeping on a bookshelf; double spacing and part computer-setting have also been introduced to improve its appearance. The respective editors, Dr. Hawksworth and Dr. Gilbert, are thanked for all their hard work on these two serials. I also wish to record my special thanks to all the other officers and referees for all their energy and expertise in keeping things running in an efficient manner, and to all members for their enthusiasm and support.

J.R. LAUNDON
Honorary Secretary

(This report was presented at the Annual General Meeting on 9 January 1982).

Results of the ballot on subscriptions

The 124 members who returned ballot slips are thanked. These showed 55% in favour of a subscription increase sufficient to maintain the Lichenologist at 3 parts a year, while 45% wished for an increase to 4 parts and a more substantial subscription to help pay for this. It was mainly the foreign members who

favoured this latter option. After much debate Council decided to maintain the Lichenologist at 3 parts per year till 1985 when our contract with Academic Press expires; it may then be possible to strike a better bargain for an expanded journal. Details of the modest subscription increase (which it is hoped to hold till 1985) and a Bankers Order form will be contained in the next Bulletin.

Life membership for Senior Citizens

With effect from the publication of this Bulletin life membership is available for members of 60 and over at ten times the present subscription. Family membership is included free on payment of life membership. Thus for this year life membership is £100 and this sum plus date of birth should be sent to the Assistant Treasurer, Mr. P.W. Lambley, Castle Museum, Norwich, NR1 3JU. Senior members might like to take advantage of this offer before the rise in subscription due in January 1983.

New, rare or interesting British lichen records

Arthonia zwackhii var. zwackhii V.C. 89, East Perth: on underside of leaning trunk of mature Fraxinus, Milton Wood National Nature Reserve, north of Blairgowrie, 1981. This is the first correct report of this variety from Britain. B.J. Coppins,
R.K. Brinklow & F. Rose.

Bryoria bicolor Inner Hebrides, Rhum National Nature Reserve: abundant in summit grassland, Ard Nev, 540m. 1982. This is a granite mountain. Not seen on the adjacent, higher hills of gabbro and serpentine. O.L. Gilbert.

Caloplaca granulosa V.C.9, Dorset. Widespread on the vertical limestone walls of Corfe Castle 30/96082Q often closely associated with C. cirrochroa, Feb. 1982. Previous records relate to collections from Cheddar Gorge by Joshua in 1875. This species can be separated from the related C. verruculifera by its smaller size, less well developed marginal lobes, less gross more granular isidia and confinement to limestone. It is a southern European species. Det. Coppins & James. Col V.J. Giavarini.

Cyphelium notarisii V.C. 25, East Suffolk known from one site on oak fencing, Aldeburgh Marshes 62/45.56. May, 1979. C.J.B.Hitch.

Lecidea pernigra Hertel V.C.57, Derbys: on horizontal surfaces of sandstone boulders in Cracken Edge Quarry, near Chinley, N. Derbyshire, 43/036833. It is not unlike Huilia crustulata in general appearance but has a light charcoal grey thallus and the black apothecia seem to cluster around cracks in the top of the flat sandstone surfaces. This is the first British record. 29 April, 1979. B.W. Fox det. B.J. Coppins.

Lecanactis amylacea This rare species of ancient oaks has now been found in four Welsh sites and one in the Lake District; we suspect it has been much overlooked. F. Rose, Ivan Day & R.G. Woods.

Lecanactis hemisphaerica V.C. 9, Dorset: extensive colonies on sheets of crumbling plasterwork together with Dirina repanda and Leproplaca xantholyta. Confined to north and east facing walls of Affpuddle Church 30/806937. Formerly regarded as an 'eastern' species this is a considerable extension of its range. Det. James. Col. V.J. Giavarini.

Lobaria amplissima V.C. 5, South Somerset: Nettlecombe Park, on three old oaks in some quantity. First record for Somerset, 1982. F. Rose.

Massalonia carnosa V.C. 69, Westmorland: overgrowing bryophytes on large, shaded boulder, Yew Crag Wood, Ullswater 35/41.20, Jan. 1981. First modern record for the Lake District. Ivan Day.

Parmelia quercina V.C. 5, Somerset: on two old oaks in Nettlecombe Park, 1982; growing in a Xanthorion community with Anaptychia ciliaris. The most northerly record in Europe. F. Rose.

Opegrapha areniseda V.C. 111, Orkney Islands: on very soft sandstone cliffs, Rose Ness 39/52.99., August 1979. A.L. Smith II p.265 notes it as very rare in the Channel Isles and the Isle of Man. C.J.B. Hitch.

Parmeliella plumbea Now known from four separate sites in the Lake District woods. Ivan Day.

Phaeophyscia sciastra Inner Hebrides, Rhum National Nature Reserve; local on the top of slightly eutrophicated stones in the margin of Loch Fiachanis, April 1982. This appears to be its typical habitat in Britain. O.L. Gilbert.

Rinodina milvina (Wahlenb.) Th. Fr. Inner Hebrides, Colonsay, near Loch Breac, on siliceous rocks, 1981. First British record. Det. Dr. H. Mayrhofer. Col. B.J. Coppins & F.Rose.

New members

The following new members joined the Society between October 1981 and May 1982. FM = family member.

Miss A. Aarons, 8, Winscombe Crescent, Ealing, LONDON, W5 1AZ.

Mr. J.D. Barrance M.B.E., Awelfryn, Pentre, TREGARON, Dyfed,
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Mrs. V. K. de Winter, 10 Donnington Road, HARROW, Middlesex.

Mr. P. J. Wright, Combe Folly, Cliff Way, Compton Down,
WINCHESTER, Hampshire.

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349 - 358. [A new species, resembling Cladonia floerkeana,
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[Detailed account and records.]

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A KEY TO PELTIGERA IN GREAT BRITAIN

Their large size and attractive rosette form make lichens of the genus Peltigera conspicuous. The genus is easily recognised but there have been conflicting views on the limits and taxonomic rank of several taxa. The recent checklist of British lichens recognises several species not found in the common handbooks, e.g. Duncan (1970), and a non-professional lichenologist may now feel rather confused. This key offers help in identifying the species known to occur in the British Isles. It must be emphasised however, that a key is no substitute for getting to know the species and their characters from handling typical, named material.

When identifying Peltigera inspection with a good hand-lens is sufficient as long as the specimen is mature and has not suffered excessively from environmental stress or been otherwise disturbed in its normal growth. Specimens collected for the herbarium should be lightly pressed as otherwise they may be easily broken. On the other hand, essential features may be lost or become difficult to observe if the specimens have been under too heavy a pressure. Important characters are found both on the upper and lower surfaces, therefore one should avoid gluing specimens.

The presence or absence of tomentum on the upper surface is an important character and best seen near the margins of the lobes, especially when in a dry state. When wet the tomentum is more difficult to distinguish but is rapidly unmasked by pinching the lobe edge between a piece of absorbent tissue-paper.

The presence or absence of veins is also characteristic for species. Veins are usually under 1.5mm broad, raised or flattened, rib-like structures on the lower surface and leave broader round or elongate depressions (interstices) with whitish colour between. In species lacking veins the depressed or paler parts are usually distinctly narrower than the raised and darker ones. The form and pattern of occurrence

of rhizinae are also important characters. One should distinguish between separate (lying well apart from each other); and confluent or diffuse (with their bases fused together or difficult to separate) rhizinae as well as between those which are richly branched or almost branchless (simple). The colours of the rhizinae and the under side are important characters, though they may be subject to some environmental modification.

When damaged many species of Peltigera produce flattened marginal regeneration squamules or lobules, and these should be distinguished from 'true' more or less vertical and coralloid isidia (couplet 4).

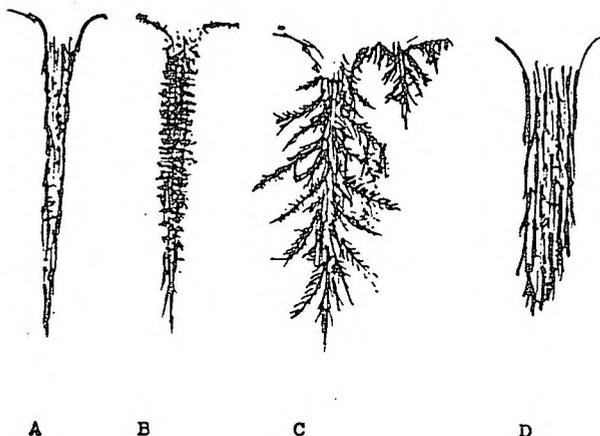
In certain species the form of the apothecia is diagnostic, for example the plane discs of P. horizontalis or P. venosa contrast with the saddle-shaped ones (with revolute edges) of other species. In the present key microscopic characters (spore size etc) have been disregarded even though in certain cases they may offer useful additional characters.

Also the chemistry is only briefly reported here. A number of species lack constant secondary lichen substances as revealed by the usual t.l.c. techniques; in the others the depside tenuiorin often accompanied by methyl gyrophorate as well as one to several triterpenoids (including zeorin) are present in somewhat variable combinations. Spot tests have little practical value, but those species which have lichen substances may produce a KC+ red reaction. T.l.c. is useful; in addition to the standard solvents special techniques may be necessary to distinguish certain (still largely unidentified) triterpenoids.

The British Isles have a fairly rich Peltigera flora; only five of the European species (see Vitikainen 1981) are missing. Certain species have, however, seriously declined in recent decades due to atmospheric pollution and radical changes in land use. The western and northern mountainous areas of Britain still offer suitable habitats for many species, and recent finds suggest that many new records can be expected, perhaps also additional species such as P. neopolydactyla (Gyelnik)

Gyelnik or P.ponojensis Gyelnik, both of which are common in northern Europe.

Brian Coppins is thanked for adding details of the ecology and distribution of the species in Britain.



Different types of rhizines schematically

- A separate, simple (P. praetextata)
- B separate, branched (P. membranacea)
- C confluent, richly branched (P. canina)
- D fasciculate (P. horizontalis)

1. Upperside tomentose (best seen at lobe margins). 2.
 Upperside smooth or scabrid, not tomentose. 11.

2. Bright green when moist (phycobiont green alga Coccomyxa), small darker spots (cephalodia, with blue-green alga Nostoc) on upper side. Secondary lichen substances always present. 3.

Bluish-grey to brownish-green when moist (phycobiont blue-green alga Nostoc); cephalodia absent. Constant lichen substances lacking (present in one species). 4.

3. Underside blackish in the centre, without veins or with a few diffuse broad and dark veins; lobes mostly stiff and thickish, edges ascending and when moist with a narrow whitish border. Apothecia with a uniform green cortex on underside. Among mosses on oligotrophic soils. In mountainous areas; rare in the west and more common in the north, much declined since last century.

P. aphthosa (L.) Willd.

Underside with a distinct network of pale or dark-coloured veins; lobes mostly undulate and irregularly divided, green up to the edge. Only small green cortical patches on underside of apothecia. In the west and north, more widespread than the preceding species, and generally in less acid habitats.

P. leucophlebia (Nyl.) Gyelnik

4. Isidiate or sorediate. Secondary lichen substances absent. 5.
 Without isidia or soralia (flattened marginal regeneration lobules may be present). 7.

5. Sorediate; soralia orbicular, laminal. Small species (usually 1-2 cm across); apothecia, if present, small, nearly always under 4 mm diam. Among mosses in sandy and gravelly soils, sites of old bonfires, disused railway lines etc. Widespread.

P. spuria (Ach.) DC.

Isidiate.

6.

6. Isidia laminal, peltate. Thallus small, lobes under 1 cm broad; apothecia rare (sterile in Britain). Among mosses on eutrophic soil and rocky platforms by rivers. Very rare: one locality in east Scotland.

P. lepidophora (Nyl. ex Vainio)
Bitter

Isidia marginal and laminal, squamulose or coralloid, ascending; lobes becoming often 1 cm broad; often fertile, apothecia large, with long stalks. On tree trunks and bases, on rocks and soil. Common and widespread.

P. praetextata (Sommerf.) Zopf

7. Underside without veins; tomentum on upper side (near margins) erect; colour bluish-green when wet. Secondary lichen substances present. On oligotrophic soil among mosses. Rare, in Scotland only. No recent collections.

P. malacea (Ach.) Funck

(If bluish-grey when moist and possibly provided with funnel-shaped or flattened green squamules: the blue-green algal morphotype of P. apthosa - not known in the British Isles).

Underside with distinct veins; tomentum mainly appressed. No secondary lichen substances.

8.

8. Rhizinae separate, slender and tapering, unbranched (or with very few ramifications). Lobes usually over 1 cm broad, margins scarcely down-turned. See 6.
P. praetextata (Sommerf.) Zopf
Rhizinae towards the thallus centre richly branched. 9.

9. Lobes under 1 cm broad; sterile lobes with up-turned margins. Rhizinae soon darkened and richly branched, confluent. Veins soon darkening towards thallus centre. Discs of apothecia mostly over 4 mm diam. Preferring basic soils. Rather common and widespread.
P. rufescens (Weis) Humb.

(If veins persistently pale and discs of apothecia under 4 mm diam. check the presence of soralia for P. spuria, see 5.)

Lobes usually over 1 cm broad; sterile lobes with down-turned margins. 10.

10. Veins flattened and smooth in the central parts of thallus; rhizinae irregular and bushy or penicillately branched, with often confluent bases. On sandy soils (oligotrophic habitats). Widespread but local.

P. canina (L.) Willd.

Veins raised, narrow and usually persistently downy; rhizinae separate, slender, simple or with numerous short and squarrose ramifications (as in small bottle or test tube cleaning brush). Among mosses on soil, tree bases, rocks. Common, especially in the west and north.

P. membranacea (Ach.) Nyl.

11. Marginal, linear, often isidioid soralia present. On sheltered trunks of old trees, on rocks; old forest species. In the west and north.

P. collina (Ach.) Schrader.

Without soralia.

12.

12. Small species, usually under 2 cm diam., bright green when moist (phycobiont green alga Coccomyxa); underside with fan-shaped dark veins to which are attached small cephalodia with Nostoc phycobiont; fastened with only one rhizoid. Apothecia very common, with flat discs. Secondary lichen substances present. On soil, esp. on calcareous rocks. Rare in Wales and the north of England, more common locally in Scotland.

P. venosa (L.) Hoffm.

Larger species with numerous rhizinae; phycobiont blue-green alga.

13.

13. Thallus whitish below, with narrow elevated pale veins and slender, little branched whitish rhizinae. Upper side bluish-grey, glossy; marginal isidia or lobules often present. Secondary lichen substances absent. Among mosses on soil, tree bases and rocks. Scattered (overlooked?) in the northern mountainous areas.

P. degenii Gyelnik

Veins (if present) darkened and flattened. Lichen substances present.

14.

14. Upperside scabrid (roughened). Bluish-green to brownish-green when moist. Among mosses on oligotrophic soil. Very rare: only one locality known (Orkneys).

P. scabrosa. Th. Fr.

Upperside smooth; dull or glossy but not scabrid.

15.

15. Underside without veins, dark brown to black, with small whitish round spots; rhizinae dark, fasciculate, separate. Upper side browned; medulla thick, its upper part scaling near margins with isidioid schizidia. Apothecia with flat discs, rare (sterile in Britain.)

On mossy boulders and rocks. Very rare: only one record Breadalbane Mountains, Scotland.

P. elisabethae Gyelnik

Not as above.

16.

16. Veins ochraceous or slightly darkened in the centre, flat and rather broad, sometimes diffuse; rhizinae pale, slender. Upper side dull. Apothecia rather small, pale brown, discs saddle-shaped. On soil, often in open habitats (meadows, lawns, by ditches, footpaths, dunes, woods). Very common especially in the west and north.

P. hymenina (Ach.) Delise

Veins and rhizinae soon becoming brown; upper side usually glossy.

17

17. Veins few, broad, mostly diffuse; upper side almost always pruinose at margins; rhizinae mostly diffuse, confluent. Apothecia short-stalked, discs saddle-shaped, dark brown to blackish. Among mosses on soil, including lead contaminated soil, or rocks. Scattered.

P. neckeri Hepp ex Müll. Arg.

Not as above.

18.

18. Apothecia with flattened discs; rhizinae fasciculate, separate, usually black. Under side whitish near margins; upper side bluish grey. On mossy rocks or trees. Old forest species. Widespread.

P. horizontalis (Huds.) Baumg.

Apothecia with long stalks, discs reddish-brown saddle-shaped. Lobes usually with brownish tinge, margins usually crisped and squamulose. Under side near margins dirty brownish; rhizinae when young often confluent, pale brown, darker when old. On soil among mosses, on tree bases, rocks. Local in northern England and Scotland.

P. polydactyla (Necker) Hoffm.

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