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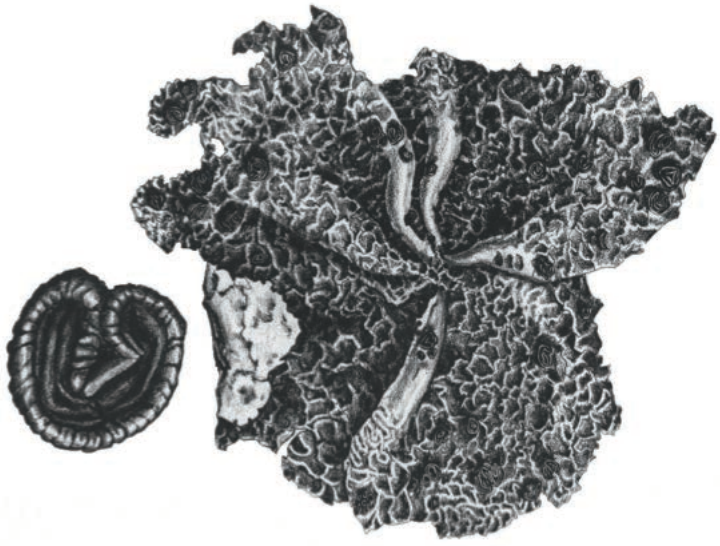

Official publication of the
International Association for Lichenology

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International Association for Lichenology

The **International Association for Lichenology** (IAL) promotes the study and conservation of lichens. It organizes symposia, field trips, and distributes a biannual newsletter. There is a listserver that enables on-line discussion of topics of interest. Webpages devoted to lichenology are also maintained by members of the Association. People wishing to renew their membership or become members of IAL are requested to send their subscription (one payment of 40 USD for 2012-2016) to either Treasurers.

The **International Lichenological Newsletter** is the official publication of IAL. It is issued twice a year (July and December) in English. The Newsletter is also available on the Internet. The Newsletter is divided into four main sections: 1) **Association news:** official information concerning the Association, such as minutes of Council meetings, proposals of Constitutional changes, new members, changes of addresses, etc. 2) **News:** information about lichenologists, institutional projects, herbaria, requests of collaboration, announcements of meetings, book reviews, etc. 3) **Reports:** reports of past activities, short lectures, obituaries, short historical novelties, etc. 4) **Reviews:** presentation of recent progress and other topics of interest in lichenology with optional discussion. When the material exceeds the available space, the Editor will prepare a summary, on prior agreement with the contributors.

Any information intended for publication should reach the Editor on or before **June 15** and **November 15** for inclusion in the July and December issues, respectively.

IAL affairs are directed by an Executive Council elected during the last General Meeting. Council members elected at the IAL7 Symposium (Bangkok, Thailand, 2012) are listed below, and will serve until 2016.

IAL Council 2012-2016

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ASSOCIATION NEWS

Announcements of a General Meeting of the IAL at IMC10 in Bangkok

Congress on 5 August at 6.00 pm, in the Queen Sirikit Convention Center in Bangkok (room TBD). Currently proposed agenda items:

1) Update on planning for IAL8 in Helsinki

2) Introduction of awards and changes to the constitution

3) Any other business

If you wish to have any items to add to the agenda, please send these suggestions to the secretary as soon as possible.

Constitutional changes (see below) are suggested to accommodate additional awards and to change the minimum time for nominations for awards, as well as for Officers, Auditors and Nominating Committee, and the way in which calls for nominations and meetings are made.

Two awards introduced at the last IAL meeting need be accepted by the General Meeting, and former awardees retrospectively accepted:

- "Margalith Galun Award" for the best oral presentation and best poster at an IAL meeting.
- "Sylvia Sharnoff Award" for the best to an outstanding web page devoted to lichens.

The president would like to propose to the General Meeting at the meeting in Bangkok that we introduce additional awards. These awards should be at a postdoctoral level when researchers are actively seeking for a permanent position and helpful for their CVs. The awards should be restricted to applicants that have completed their Ph.D. within five years prior to the submission deadline.

- Further awards should be discussed, including specific awards for areas within lichenology or specific groups of lichenologists (e.g., prominent young researcher working and living in a tropical country or female early career researchers).

Changes to the IAL constitution

Current constitution

§ 7. Nomination and election of Officers, Auditors and Nominating Committee – The Nominating Committee must publish a call for nominations in the *IAL Newsletter* at least one year prior to the general meeting. Any member of the IAL may submit nominations or be nominated. Nominations, to be valid, need the written consent of the nominees, and need to reach the Nominating Committee at least two months prior to the general meeting. Nominations from the floor at general meetings are allowed only when no nominee for a given

post is elected. Elections will be made by majority vote at the IAL general meeting. Voting will take place irrespective of the number of nominees for a post.

§ 10. Awards – At least two awards should be assigned: a) an award recognising excellence in research by young lichenologists for outstanding work resulting from doctoral dissertations or similar studies (Mason Hale Award), and, b) a medal recognising the life-work of distinguished lichenologists (Acharius Medal). IAL award recipients are decided on by the Council. A call for nominations to all awards must be made in the Newsletter at least one year prior to the next general meeting. The initiation of further awards will be decided by the general meetings.

Proposed changed constitution

§ 7. Nomination and election of Officers, Auditors and Nominating Committee – The Nominating Committee must publish a call for nominations reaching the membership at least six months prior to the general meeting. Any member of the IAL may submit nominations or be nominated. Nominations, to be valid, need the written consent of the nominees, and need to reach the Nominating Committee at least two months prior to the general meeting. Nominations from the floor at general meetings are allowed only when no nominee for a given post is elected. Elections will be made by majority vote at the IAL general meeting. Voting will take place irrespective of the number of nominees for a post.

§ 10. Awards – The initiation of IAL awards is decided by the general meeting. IAL award recipients are decided on by the Council.

The IAL has currently the following six awards:

1) The Mason Hale Award recognising excellence in research by young lichenologists for outstanding work resulting from doctoral dissertations or similar studies.

2) The Acharius Medal recognising the life-work of distinguished lichenologists.

3) The Sylvia Sharnoff Education Award for an outstanding web page devoted to lichens.

4) The Dharani Awasthi award for a prominent young researcher working and living in a tropical country, and who has completed the Ph.D. within five years prior to the submission deadline.

5) The Aino Henssen award for a prominent female researcher early in her career, who has completed her Ph.D. within five years prior to the submission deadline.

For the above awards, a call for nominations must reach the membership at least six months in advance of the next general meeting.

6) The Margalith Galun Award for outstanding student contributions at an IAL meeting (best oral and poster presentations). These awards will be decided and presented by the Council at an IAL meeting.

NEWS

The Second International Conference

"Lichenology in Russia: current problems and future prospects" St. Petersburg, Russia, 5–8 November 2014

First announcement

Members of IAL are invited to participate in a conference dedicated to the 300th anniversary of the Komarov Botanical Institute of the Russian Academy of Science and to the 100th anniversary of its Institute of Cryptogamic Plants. During the conference a wide range of the most pressing issues of contemporary lichenology will be discussed:

- molecular phylogeny, systematics, geography and ecology of lichens
- regional floristic studies
- structural and population studies
- modern methods of lichenological research and herbarium work
- conservation of rare lichen species and creating *Red Books*
- prospects of the multivolume edition *Lichen flora of Russia*.

Roundtables are planned to discuss the following topics:

- data collection, analysis and storage: field and laboratory techniques, herbaria and databases
- regional *Red Books*: lists and criteria
- popularization of lichenology

The registration form and brief abstracts (2000 characters) should be sent before 13 May 2014 to the following email address: *lichenbin@yandex.ru* or by post to: Dr Mikhail P. Andreev, Komarov Botanical Institute RAS, Prof. Popov Str. 2, St. Petersburg197376, Russia.

Reports: Participants will have 15 minutes for their reports, and oral presentations will take place during the poster session. The maximum size for a poster is 70 x 100 cm.

Working languages: Russian, English.

Papers: It is planned to publish a *Proceedings of the International Conference*. Texts of articles, only in electronic form, should be e-mailed to: *lichenbin@yandex.ru* (marked – "paper 2014") before 20 August 2014. Material will be acknowledged by the Organizing committee within 14 days of its receipt; in the absence of such notification, please send the message again. The Organizing Committee reserves the right to select the materials for publication.

Submissions not provided according to the following guidelines will not be accepted: articles in Russian or English, in .doc format, and of no more than 13,000 characters.

Registration fee for participants is 10 EUR (including organizational and service costs) must be paid on registration. Please note that the Organizing Committee does not provide any financial documents for the registration fee.

Organizing Committee: Chairman – Michail P. Andreev

Secretary – Ludmila Gagarina

Komarov Botanical Institute RAS, Prof. Popov Street 2, St. Petersburg 2197376, Russia.

Tel: +7 812 372 54 11; Fax: +7 812 372 54 43; e-mail: *lichenbin@yandex.ru*

Registration Form

Surname, First name:

Title, degree, position:

Institution/organization:

Mailing address:

Tel.

Fax:

E-mail:

I confirm participation in the conference with the oral/poster presentation.

Title:

Name keynote speaker:

Name co-authors:

Request for Hotel Reservation Yes No

For a printed version of an invitation to attend the Conference, please contact e-mail: *lichenbin@yandex.ru*

REPORTS

Lichens as a Tool for Interpretation of Environmental Changes and Management

University of Lisbon (Portugal), 27–31 January 2014

The second course entitled "Lichens as a Tool for Interpretation of Environmental Changes and Management" followed the success of the first course held at the Centre for Environmental Biology (CBA) at University of Lisbon (Portugal). These advanced courses are organized annually by the CBA for masters and doctorate students, as well as post-doctorates. As in the first course, participants from both Portugal and other countries (Italy and Croatia) attended and were provided with the basics of lichen biology and ecology, biomonitoring and data analysis methods for the interpretation of environmental conditions and changes using lichens (see the programme at *http://ecofun.fc.ul.pt/Activities/lichens-course*). Based on this, one could argue that nothing new happened this year, but that would be wrong. Besides Cristina Máguas, Sofia Augusto, Paula Matos, Silvana Munzi and Pedro Pinho, this year Cristina Branquinho joined the teaching team, contributing with her stimulating approach.

The one-day excursion was undertaken at "Companhia das Lezirias", Samora Correia (*http://www.cl.pt/htmls/en/home.shtml*), where our special guest, Luca Paoli from the Università di Siena (Italy), helped us in the practical lessons. The main idea underlying fieldwork was to use

Fig. 1. Participants of the course at Companhia das Lezirias

Figs. 2 and 3. Lichen diversity survey during the field excursion at Companhia das Lezirias

the acquired knowledge to compare two sites with different nitrogen availability, namely a site with low nitrogen availability and another one near a cattle barn, with high nitrogen availability. Unfortunately, the rain decided to show up this year and despite our heroic devotion to work, it was impossible to sample the area around the cattle barn.

Impressive “personal projects”, hypothetical proposals written by the participants, including the principles learnt during the course, were presented at the concluding workshop, showing how participants really understood how to make practical applications of the tools provided.

Next year, the programme will also include lichenometry and an in-depth on ecosystem-services linked to terricolous lichens in soil crusts. Stay in tune!

Our special thanks go to Claudia Oliveira (CBA Secretariat) for her help in the organization, to Catarina Costa for the beautiful drawn of *Parmotrema hypoleucinum* represented on the flyer and to the participants of the previous course whose suggestions helped us to improve the “product”.

Silvana Munzi, Lisboa

Lichen course “Lichen Ecology and Biology”

Uppsala, 3–7 March 2014

This first “Lichen Ecology and Biology” course at the Department of Ecology of the Swedish University of Agricultural Sciences (SLU) in Uppsala targetted doctorate students and post-doctorates working with lichens (or other ascomycetes) in several topics ranging from ecology to conservation biology, taxonomy or similar fields. This was the first module of the course, which is composed of two parts, covering the main subjects on lichen ecology and biology. The objective of this module was to provide students with: 1) a general knowledge on biology and ecology of lichens, including their symbiotic nature, ecophysiological aspects, and use as indicator species; 2) an overview of the phylogeny of Ascomycota and of molecular methods currently used in lichenology; and 3) an outline of the various ecological aspects studied in contemporary lichenology. Lectures were given by several researchers of each of the subjects covered, supported by recent literature on the field. The first day was devoted to lichen biology and phylogeny and Göran Thor, our host, gave a general overview of lichen biology (symbiosis, morphology and anatomy) and ecology (use of lichens by other organisms, lichens as ecological indicators, lichens in the arctic/antarctic, boreal, nemoral and tropical ecosystems and lichen floras), while phylogeny of Ascomycota was given by Stefan Ekman (Uppsala University). On the second day the participants had an overview of boreal lichen ecology by Per-Anders Esseen (Umeå University), and Johan Asplund (Norwegian University of Life

Fig. 1. Group photo in the lobby of the department of Ecology, SLU. Photo: M. Morando

Fig. 2. Göran Thor preparing Swedish food. Photo: P. Matos

Sciences) lectured on lichens and their role in ecosystem processes (lichen compounds and other functional traits, lichen-invertebrate interactions, lichen decomposition, linking lichenivory, decomposition and functional traits). On the third day, Piret Lõhmus (Institute of Ecology and Earth Sciences, Tartu University) provided an outline of lichen ecology research in Estonia and Anders Dahlberg (Department of Forest Mycology and Plant Pathology, SLU) talked about molecular ecology with lichens. The participants, guided by Ariana Kubartova, also had the opportunity to visit the laboratories of the Department of Mycology and Pathology on SLU. On the fourth day, Göran Thor provided some insights on several aspects of nature conservation and lichens (tree diseases, life history traits, monitoring with lichens, the Swedish lichen Red List) and Kristin Palmqvist (Umeå University) talked about lichen physiology and environmental aspects. On the last day, Thomas Ranius (SLU) gave us a talk about modelling lichen populations, namely colonisation-extinction dynamics of lichens, Leif Tibell (Uppsala University) lectured on taxonomic paradigms in the 20th century and calicioids, and Göran Thor summarised the course. The course also had literature seminars with the purpose of promoting interesting discussions on the focused research topics and participants also had the opportunity to present their own research projects to a wider audience (professors, other attendees and several visitors from the SLU) with some space for discussion and suggestions.

This is my overview of the course that I so gladly attended. In my opinion this module was really useful, not only because it provided me with some insights into fields of lichen research that I am not familiar with, but also because in my own subject, lichen physiology and ecology, it was really exciting and stimulating to learn and discuss subjects related to what I am currently researching and that definitely gave me some new ideas and perspectives to improve my work. This kind of course is also very important as a way of promoting interaction amongst the new generation working with lichens, by establishing new contacts and new possibilities for future collaborations. I would like to thank Göran Thor for organizing this course and welcoming us so well, and I am sure that the other participants feel the same way. I must say that this course was not only about lichens! Göran made sure we had a taste of Sweden by offering us the most wonderful delicacies at Fika time (the amazing coffee break in Sweden) and by inviting us to a marvellous Swedish dinner, all made by him. I had a great time and I recommend everyone to attend the second part of the course (An introduction to lichen identification), that will take place in the spring of 2015, and include some fieldwork in the beautiful Swedish landscape. Don’t miss it!

Paula Matos, Lisboa

Participants

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A workshop on the family Pannariaceae of the Western Hemisphere with Dr Peter R. Nelson

For the fourth year in row lichenologists from far and wide converged at Southern Oregon University in Ashland Oregon USA to take part in a lichen workshop about an obscure and difficult group of lichens sponsored by the Northwest Lichenologists. Past workshops in this series have focused on groups such as calicioid lichens and fungi with Steve Selva, infertile crustose species with James Lendemer, and *Leptogium*/*Collema* with Daphne Stone. This year the focus was on the family Pannariaceae; this includes genera such as *Fuscopannaria*, *Pannaria*, *Psoroma*, *Parmeliella* and *Vahliella* just to name a few. Many people are paranoid to ponder a pannarioid, but with the help of Dr Peter Nelson we came away with the confidence to tackle this intriguing and diverse group of cyanolichens.

Dr Nelson has conducted extensive fieldwork with lichens across the western hemisphere from Alaska to the Pacific Northwest to Chile. Along the way he has discovered populations of rare Pannariaceae such as *Erioderma pedicellatum* in Alaska, and discovered things about known species that are new to science, such as the fact that *Fuscopannaria viridescens* the only known green algal species in North America actually has cephalodia, something that had hitherto been overlooked.

Fig. 1. Participants at the Black Butte Site in the Siskiyou Wilderness, Six Rivers National Forest California

On the first day of the workshop the group went on a field trip to Black Butte, on the edge of the Siskiyou Wilderness in Six Rivers National Forest in Northern California. This location was chosen on the suggestion of Bruce McCune, a site that was visited by his group during the IAL road trip in 2008. Even though there was some trepidation about finding a Pannariaceae "hotspot" we were not disappointed: during the day we encountered nine species that are currently or were formally considered to be in this family.

Fig. 2. Psoroma hypnorum*, a rare lichen in California*

After just crossing from Oregon into California, before we even arrived at Black Butte, we stopped along the side of the road and encounter our first two species: *Fuscopannaria pacifica* on the base of a large Madrone tree, and *F. californica* on a small roadside rock. *F. pacifica* (formally thought to be *F. saubinetii*) is the most common epiphytic member of the family in the local area. A clue to separating these species in the field is the color of the apothecia, tan to dark orange in *F. pacifica* and brown to black in *F. californica*.

On a large open rock near the parking place we observed large patches of *Fuscopannaria thiersii*. This species is distinguished in the field by its upturned isidia like lobes. This was found to be growing in close proximity to *Massalongia carnosa*, a lichen that was formally thought to be a member of this family.

As the group left the trail to hike cross-country through the forest to the base of a large rocky cliff we encountered several nice large thalli of *Psoroma hypnorum* growing among rock dwelling bryophytes. This is a lichen that is thought to be rare in California. *Psoroma hypnorum* is the world's most wide ranging species of *Psoroma* and the only species that is known to occur in our area. The center of speciation for this genus is in Southern South America and New Zealand.

Upon reaching the base of the cliffs we were rewarded with several more species. On thin soil below the overhanging rocks we encountered *Fuscopannaria cyanolepra*, a species that is nearly completely composed of soredia. It appears more like a cyanbacterial *Lepraria* than a *Fuscopannaria*. We also observed *Fuscopannaria aurita*, a distinct rock dwelling species with flattened earlike lobes. After a bit more searching we found *Fuscopannaria praetermissa* growing on soil among rocks, distinguished by the frosty whitish tips of the lobes.

With Pannariaceae species swirling through our heads and snow swirling in the skies above us we made a hasty retreat to the warmth of the cars. After descending from the high country we stopped in a mixed conifer and white oak site and searched for *Fuscopannaria pulveracea*

Fig. 3. Pannariaceae material from the western hemisphere

on the oaks. Although this species is known from nearby at the Siskiyou Field Institute growing on large open grown white oak we did not encounter it at this stop. Along with some of the other epiphytes mentioned above we also found *Vahiella leucostictoides* growing among rich bryophytes as an oak epiphyte.

The following days were spent with comprehensive lectures detailing all of the genera of North American Pannariaceae coupled with time in the lab to examine specimens. We spent the most time on *Fuscopannaria* the most diverse genus in our local flora. Along with a comprehensive tour of the lichens in this family we also learned of Dr Nelson's efforts to model the habitat of several hypermaritime species such as *Erioderma sorediatum*, *Leioderma sorediatum* and *Pannaria rubiginosa* in the central Oregon coastal dunes. A lively and insightful discussion ensued with workshop participants sharing their experience with these species.

Dr Nelson provided a wide selection of specimens for us to examine and compare from locations ranging from Arctic Alaska to the Pacific Northwest to southern Chile. We learned the technique for discerning ascus tip morphology and hymenial reactions using IKI and how to conduct spot tests using Pd. He provided a comprehensive bound workshop packet that includes a valuable selection of keys composed by him and his colleagues as well as gleaned from the most up to date literature.

All in all this was a valuable learning experience for all those in attendance and we are grateful to Dr Nelson for making the time to share with us his knowledge of this truly amazing group

of lichens. Once again the Northwest Lichenologists and the Cryptogam Biodiversity Observatory sponsored this event, thanks to Dr Steve Jessup for facilitating the event at Southern Oregon University. This article also appears in a modified form in the *Bulletin of the California Lichen Society*.

John Villella, Oregon

OBITUARY

Peter Wilfrid James
28 April 1930 – 13 February 2014

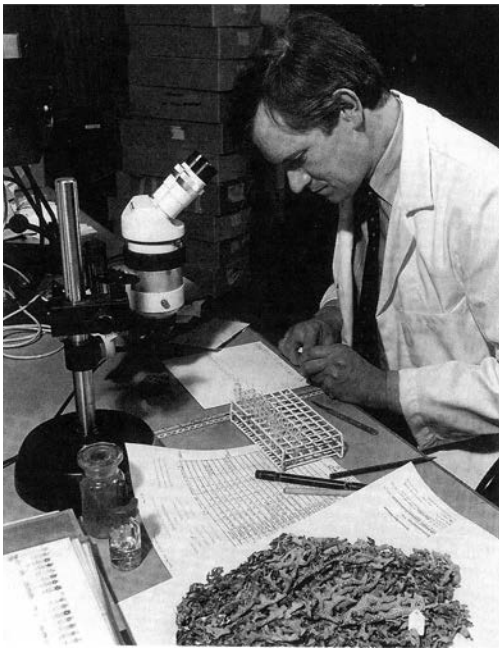

Fig. 1. Peter James at the BM, 1989.
Photo: Colin Keates

Peter James (Fig. 1), for many years (1958–1990) Head of the Lichen Section at the Natural History Museum in London, was one of modern lichenology's great internationalists, known, admired and respected by lichenologists in all parts of the world. His welcoming, courtly personal style made all visitors to the BM (and there were very, very many over the years), feel warmly included in the life of the Lichen Section, and a valued colleague no matter what level of experience or sophistication the visitor might, or might not, have. His death on 13 February 2014 in Birmingham, after a long illness, brought sadness, and also a warm fund of memories, to very many in the worldwide family of lichenologists who knew Peter as a colleague and friend. In this brief memoir of Peter, I outline mainly his interest in, and contributions to the IAL.

Peter, the son of a Sutton Coldfield school Headmaster, was born on 28 April 1930, in the Cornish village of St Just in Roseland, and educated at Bishop Vesey's Grammar School, Sutton Coldfield in the West Midlands from 1935 to 1948. [This venerable school was founded in 1527 by John Harman (1462–1554) also known as Vesey, who became Bishop of Exeter, and advisor to King Henry VIII and a friend of Cardinal Wolsey]. Keen on natural history and wildlife from his school days, Peter became a student at Liverpool University from 1949 until 1955 where he read Botany, taking a First Class Honours degree and being made a University Demonstrator in Botany. Among his fellow students were the singer, John Shirley Quirk (1931–2014) and the actress Patricia Routledge.

It was during his student years that Peter became interested in lichens quite by chance when he accompanied a zoologist colleague to his research site on Lake Bala in North Wales. Around the lake Peter noticed a rich growth of lichens, collected them and took them back to Liverpool for study. His supervisor allowed Peter to work on the lichens of North Wales for a PhD, but as he died shortly afterwards, Peter's new supervisor became the Professor who, knowing nothing at all about lichens, suggested that Peter work as a Vacation Student in the lichen herbarium of the British Museum (Natural History) and get to know something of the literature relating to British lichens and learn how to curate specimens. Fortuitously, the Museum needed a cryptogamist to study lichens and Peter was offered a job by the then Keeper Dr (later Sir) George Taylor (1904–1993), to work as resident lichenologist in the cryptogamic then housed in the central tower where the Diatom Section is now. Almost immediately Peter was called up for National Service training when he took with the British Army in Bavaria, being granted leave of absence from the Museum from 1955 until 1957. He rejoined the Museum staff in 1958, the year that the British Lichen Society was formed (Laundon 1995) and became the foundation Editor of its journal, *The Lichenologist* (Brown et al. 1990; Arvidsson 2012). Peter contributed to the *Lichenologist's* first issue – a thoughtful Editorial (James 1958a), and "Notes on the collection and preservation of lichens" (James 1958b), addressed to the beginner in lichenology. Both are still well worth a read today.

As Scientific Officer in charge of lichens, Peter became part of the honourable tradition of BM lichenology that included the Rev. James Morrison Crombie (1831–1906), Annie Lorrain Smith (1854–1937) and Ivan Mackenzie Lamb [later Elke Mackenzie] (1911–1990). An early task was to oversee the relocation of lichens from the central tower to then present Cryptogamic Herbarium after the reconstruction of war damage. Lichens were at first in a more central position in the Crypt but in 1969 they were moved east to their present position next to the Mineralogy Library when the lichens from the Royal Botanic Gardens, Kew were added to the BM collections on permanent loan. Peter's early influences in British lichenology were the established figures of Walter Watson (1872–1960), Frederick Archibald Sowter (1899–1972), Arthur E. Wade (1895–1989) and Ursula Duncan (1910–1985), all of whom were responsible for keeping lichenology alive in England, Wales and Scotland in what is now termed, "the leanest years" or the "dark days" (Hawksworth & Seaward 1977; Gilbert 2004). Peter's sole meeting with a very old and infirm Walter Watson, as he once told me, involved talk of Test cricket and not with lichens at all, Watson then having lost his memory for lichens. Ursula Duncan was the strongest influence in developing Peter's interest in lichens. At a field meeting in the Lake District supposedly devoted to bryophytes, Ursula Duncan realised that in Peter James she had an apt and interested pupil, and the weekend was devoted to lichens instead.

Over subsequent years she taught him all she knew about British lichens. Peter later wrote of this: *"…by unstintingly putting her time, knowledge and collections at the service of young aspiring lichenologists she undoubtedly played a premier role in the renaissance of the subject in Britain. Those of us privileged to attend her courses at Kindrogan Field Centre or come under her guidance at British Lichen Society field meetings have treasured memories of the great enjoyment, humour and value of those occasions…"* (James 1986: 384). Peter was to be of considerable help to Ursula Duncan in the production of her book, An Introduction to British Lichens (Duncan 1970). Indeed, in her Introduction to that book, which was for many years a kind of British lichenology "bible", Ursula Duncan noted *"…It is not too much to say that this book could not have been written without the help of Mr. P.W. James, who has supplied much of the scientific data and also given assistance throughout, especially with the keys…"* (Duncan 1970: vii). Amongst Peter's many noteworthy contributions to British lichenology are his Checklist (James 1965) and his review of lichen communities in the British Isles (James et al. 1977).

In November 1958, Peter joined an expedition to Patagonia organized by the Tasmanian Geoff Bratt (1931–1977), an excellent mountaineer who was then finishing a PhD in Chemistry at Imperial College. Bratt encouraged the explorer/mountaineer Eric Shipton (1907–1977) to join him (they had climbed together in the Karakorum the year previously when Bratt invited Shipton to lead the Imperial College expedition there), and the Museum seconded Peter James to this venture to collect lichens, mosses, ferns and flowering plants. This introduced Peter to the lush lichen mycobiota of the Lago Argentino region where the expedition was based. He made good use of his time there, collecting 4000 specimens including 2500 lichens, seeing for the first time the great austral diversity in genera such as *Menegazzia, Placopsis, Pseudocyphellaria* (which he then still called *Sticta*) and *Psoroma*, which in Britain were each represented by one or a few species.

In 1959 the New Zealand organic chemist and lichenologist, James Murray (1923–1961) spent a sabbatical year in London at Imperial College, next door to the BM. When Murray realized just how numerous and important the BM's lichen collections were, he began spending more and more time in the Lichen Section working with Peter James on New Zealand and Southern Hemisphere genera that were of interest to him, especially *Menegazzia, Psoroma, Pseudocyphellaria* and *Sticta*, genera that were well-represented in herbaria but poorly understood and still poorly collected in New Zealand. Peter and James Murray became firm friends and began a collaborative world monograph of *Sticta sens. lat*., an ambitious undertaking that led to a large amassing of specimens from London (the BM and K), Geneva and Munich and an impressive preliminary working key as a first step. After James Murray's untimely death in June 1961, arrangements were made by the University of Otago, and the Nuffield Foundation to bring Peter James to New Zealand to work in Dunedin and also to participate in a Royal Society of New Zealand field project to the Auckland Islands in early 1963. Otago University's Professor of Botany, Geoff Baylis, wrote to ask Peter if he would consider coming out to Dunedin to curate James Murray's extensive lichen collection. Peter was given leave of absence from the Museum on full pay, and arrived in Dunedin in October 1962 for a 6-month stay. By a great stroke of luck, I was given the opportunity to work for two months as Peter's assistant, which began for me a steep learning curve in lichenology and was also the start of a long and productive friendship. I have documented this "Dunedin phase" of Peter's life elsewhere (Galloway 2014b).

Peter's Auckland Islands trip was extremely profitable in terms of lichens seen and collected and he brought back to the BM many lovely things including specimens of *Steinera*, that were to provide the stimulus for a later treatment of this fascinating genus (Henssen & James 1982), and also *Degelia* [now *Degeliella*] *rosulata*. Trips to Central Otago (Old Man Range, Mt Brewster, Hunter Valley), Fiordland and Maungatua were squeezed in between long days of curating and labelling. A visit to the Fiordland landslides above Lake Thomson, allowed Peter to contribute an important study of the role of lichens on successional surfaces (Mark et al. 1964), an unlooked for bonus of his visit. Peter and I kept in touch by correspondence for the next 10 years at the end of which time, December 1972, I had forsaken Biochemistry and was sent to work at the BM under Peter's direction in preparing a modern New Zealand lichen Flora.

Peter's involvement with the International Association for Lichenology began at the X International Botanical Congress held in Edinburgh from 3–12 August 1964. Immediately prior to this meeting he led a pre-Congress lichenology field trip to North Wales based at Bangor (25–31 July 1964), limited to 60 participants at a cost of £20. In his first editorial for the *International Lichenological Newsletter*, Vernon Ahmadjian recorded *"...At the 1964 Botanical Congress in Edinburgh, a group of lichenologists met and approved a motion to initiate an International Association of Lichenologists. A newsletter of the association was to be circulated at periodic intervals. A committee, composed of Rolf Santesson, Peter James and Vernon Ahmadjian, was appointed to prepare the newsletter. The first two individuals also were elected officers of the association. Although considerable enthusiasm for the association and newsletter existed at the Congress, the committee, for unexplained reasons, failed to make progress on the newsletter. Inquiries from Congress participants to committee members regarding the newsletter went unanswered. Because of this inaction I decided to initiate the letter myself after determining that it would be favourably received by lichenologists. Irwin Brodo kindly agreed to assist me. If this newsletter is successful, our hope is to obtain representatives in different countries to facilitate the gathering of news and expand the coverage. We will attempt to convene at the XI International Botanical Congress in Seattle, Washington (US) in 1969 a formal meeting of the provisional International Association of Lichenologists (IAL) in order to discuss the newsletter and to establish a constitution, by-laws, and a new executive committee... I strongly favor separate bryological and lichenological societies. The two groups share little in common with respect to the organisms they study. The cooperation which has existed between bryologists and lichenologists has resulted largely from convenience, a banding together of two weak groups. It was not a natural alliance. I favor also separate mycological and lichenological societies. Although an alliance with mycologists would be a natural and probably an eventual one, this is not the time for such a union. Certainly, the lichenologists are now sufficiently numerous and diverse in research activities to strike out on their own. It is a time for lichenologists to join together in a meaningful association whose primary goal will be the strengthening and advancement of lichenology"* (Ahmadjian 1967).

Two years later at the XI International Botanical Congress in Seattle, 42 lichenologists under the Chairmanship of Ernie Brodo moved and passed the motion (with only one dissenter) that a body be formed under the name "International Association for Lichenology". A motion was also passed to continue with production of the *Newsletter*, and an Executive Council was nominated and then elected unanimously. The Council comprised Vernon Ahmadjian (US), Peter James (UK), Hildur Krog (Norway), Gerhard Follmann (Germany) and Irwin Brodo (Canada), with instructions to elect their own Chairman, Secretary and Editor (Brodo 1969). Peter was subsequently chosen as Chairman, Gerhard Follmann as Vice-Chairman, Hildur

Fig. 2. IAL trip to the Austrian Alps, 1973, Rolf Santesson, Peter James and Josef Poelt. Photo: Hannes Hertel

Krog as Secretary, Vernon Ahmadjian as Editor and Ernie Brodo as assistant Editor. Peter also acted as Treasurer for the IAL from 1969 until 1975. At the First International Mycological Congress held at the University of Exeter from 7–16 September 1971, Peter chaired two session on lichens as indicators of air pollution (Krog 1972). Without doubt, the highlight of the first few years of the IAL's life was the field meeting in the Austrian Alps held from 5–15 September 1973 under the leadership of Josef Poelt and Maximilian Steiner, the meeting being based firstly at Kaprun and then at Steinach am Brenner. This meeting attracted 37 participants from 17 different countries (Krog 1974) and was an occasion that Peter relished a great deal (Fig. 2). In a brief survey of the progress of the infant IAL, Peter commented on the establishment and continuing success of the *International Lichenological Newsletter* and of the Alps field meeting, suggested a small membership due to cover costs fairly, mentioned the importance of affiliation with the International Mycological Association, and suggested a formal constitution for, and rules of membership of, the IAL (James 1974).

1974 was memorable for the *Progress and Problems* meeting at Bristol, which attracted a very wide international attendnace of leading lichenologists. At this meeting, Peter delivered a ground-breaking paper with Aino Henssen on the morphological and taxonomic significance of cephalodia, which drew from Rolf Santesson in discussion afterwards *"...This is the single most important paper I have heard in the last 20 years"*. At the XII International Botanical Congress held from 3–10 July 1975 in Leningrad, Peter (along with Ted Ahti) was appointed to the International Association for Plant Taxonomy's Special Nomenclature Committee for Fungi and Lichens for the period 1975–1981 (Ahti 1976).

The Lichen Section at the BM under Peter's sympathetic and friendly direction received a more or less continuous stream of visitors, from all corners of the globe as well as locally and from the rest of Britain. Mason Hale was a "regular", in the early 1970s, bringing news and gossip from the wider world of lichenology, as well as instructing us in Chicita Culberson's methods in thin-layer chromatography. Cliff Smith came every summer from Hawaii, and Dougal Swinscow and Hildur Krog "took over" parts of the Lichen Section with loud discussions of their East Africa lichens, an endeavour that gave rise to an impressive stream of papers and eventually their book which Peter arranged for the Museum to publish (Swinscow & Krog 1988). Per Magnus was another regular dubbed by Peter the "White Volcano", and he was offered much help, encouragement and advice during the preparation of his doctoral study on the lichen family Pannariaceae in Europe. Peter also warmly encouraged his helpful and highly disciplined assistant Joy Walker (later Joy White) in her researches on the *Neuropogonoid* species of *Usnea* (Walker 1985), a study that brought together a wide range of Australasian, Antarctic and South American material. When I arrived at the Museum in January 1973 to start work on a New Zealand lichen Flora, it was Peter who determined how things should best be approached, and over the next 10 years he offered enormous support and encouragement and he wrote the account of *Menegazzia* for it (James 1985).

In January 1981, Peter was elected to Honorary Member of the British Lichen Society and in August-September of that year he made his second visit to New Zealand to attend the field trip that I organised for the IAL and which was based on the Canterbury University Field Station at Cass and the Rangiora High School's Boyle Lodge (Fig. 3). Peter was very much in his

Fig. 3. IAL New Zealand Field Meeting 1981, group at Boyle Lodge, Peter James at left of front row. Photo: Margaret Bulfin ?

Fig. 4. IAL Tropical Lichens meeting, London, September 1989. Patricia Galloway, Peter James, David Galloway and Cliff Smith. Photo: Edit Farkas

element on this trip, enjoying the relaxed social atmosphere in the company of many of his friends from round the world, and delighting in the lichens collected, many of which were first records made by him. Other IAL meetings that Peter attended and very much enjoyed, were the *Progress and Problems in Lichenology in the Eighties* meeting in Münster, so well organised in 1986 by the late Elisabeth Peveling (1932–1993); the 1987–1988 field meeting to Baja California organised by Tom Nash; and the *Tropical Lichens* meeting in London in 1991, to which he contributed a paper on "Macrolichen flora of mid-Atlantic islands" (Fig. 4). And in 1986, I organised a trip that would take Peter, Brian Coppins and me, on a 10-week observing/collecting trip to Chile to research various aspects of austral lichenology. Peter's 1962–1963 New Zealand visit, and his friendship with Geoff Bratt in Tasmania, cemented several interests in Australasian lichen groups, and my later New Zealand Flora work also coincided with an upsurge of local interest in Australasian lichenology with Peter once again being a helpful catalyst and encourager of the work of Jack Elix, Rex Filson, Nathan Sammy, Nell Stevens and particularly of Gintaras Kantvilas (Elix 1990; Kantvilas 1990). His visit to Argentinian Patagonia in 1958 had already alerted Peter to the wide speciation in such austral families as the Pannariaceae, Parmeliaceae and Lobariaceae, so the Chilean journey, helped hugely by Wanda Quilhot and Gerardo Guzman, allowed Peter to renew his acquaintance with these fascinating austral taxa.

On his retirement from the Natural History Museum in 1990 (Brown et al. 1990), Peter was free at last from the demands of administration attending his position as Deputy Keeper of Botany. Retirement from the Museum certainly did not mean retirement from lichenology as

by then Peter was, along with William Purvis, one of the major movers, shakers and contributors to the British Lichen Flora Project, to which he devoted much time, expertise, effort and direction. His manifold contributions to *The Lichen Flora of Great Britain and Ireland* (Purvis et al. 1992) were tremendous. He was involved in every stage of that important collaborative venture, from early discussions on funding with Bill Syratt at BP, preparing accounts of various genera, assisting most of the other contributing authors in a myriad of ways, and then shouldering editorial and proof-reading tasks before assisting with publication through Natural History Museum Publications. Following on from his treatment of New Zealand *Menegazzia,* Peter researched and helped to write the account of the Australian species (James & Galloway 1992). He was at the launch of the first lichen volume in the *Flora of Australia* series that took place after breakfast on the morning of 4 September 1992 at the IAL meeting in Båstad, Sweden, and was later honoured by the Association and the meeting as one of the foundation Acharius Medallists (Coppins 1993).

In 1993 and 1994 Peter worked closely with Per Magnus Jørgensen and Charlie Jarvis on typification of all 110 of Linnaeus's lichen names (in *Lichen*, *Mucor* and *Tremella*) as part of Charlie's wide-ranging Linnaean Plant Name Typification Project. Publication of the Linnaean lichen paper was a milestone work of which Peter was justifiably proud (Jørgensen et al. 1994), and the day that reprints of it reached the Museum, Peter gave me an autographed reprint as I was shortly leaving the Museum and London to return to New Zealand. We could look back on many shared happy times at the Museum, on field meetings and conferences, at the theatre, at concerts (at the Royal Festival Hall or the Royal Albert Hall), at dress rehearsals and first nights at the opera (The Royal Opera Covent Garden, English National Opera, Opera North and Welsh National Opera) with tickets from Patricia, and at innumerable meals at our houses (Winchmore Hill and Chingford) and his flat (Baron's Court). Peter always had a soft spot for the Atlantic islands and their lichen mycobiotas, visiting the Channel Islands many times, the Canary Islands several times, Ascension Island, and especially the Azores. The latter with William Purvis and Cliff Smith, and from their joint collections several fascinating papers duly appeared (Purvis & James 1993; Purvis et al. 1995a, 1995b).

Peter always liked the concept of the IAL as a broadly inclusive world family of lichenologists and in many ways his local and international lichen friendships made up for the lack of family in his personal life. His varied contributions to lichenology, and of his ready assistance and friendship to lichen colleagues have been noted many times and include the following accounts to which the reader is referred (Hawksworth & Seaward 1977: 33-36; Swinscow 1989; Brown et al. 1990, Galloway 1990; Kantvilas 1990; Elix 1990; Sipman 1990; Gilbert 2004; Kärnefelt 2009; Galloway 2014a – a memorial volume of the *BLS Bulletin* covering several different aspects of Peter's lichen life will appear later this year).

Peter lived for most of his "lichen life" in a small flat at the top of a Victorian house in 19 Edith Road, Baron's Court (Galloway 2014a), moving back permanently to the family home in Sutton Coldfield (where he kept his large collection of cacti) on the death of his sister in 2007. Although he never used a computer or e-mail, he kept in touch with a wide range of colleagues, mainly by telephone, although when he cared to write he was a vivid and expansive correspondent. Pat Wolseley has noted how Peter was closely involved in production of the second edition of the British Lichen Flora (Smith et al. 2009). For his 80th birthday a group of colleagues assembled in Sutton Park on 28 April 2010 to wish Peter well and to share with him

a tour of the lichens there under his guidance (see illustration *British Lichen Society Bulletin 197*: 115) as Peter then had in press his extensive account of the lichen vegetation of the Park (James & Powell 2010). Earlier in 2010, Peter's long-standing interest in the lichens of the Isles of Scilly, spanning 40 years, informed another wide-ranging and important paper (Allen et al. 2010), two splendid flowerings at the end of a long and well-spent life devoted to lichenology.

Lichens proved to be for Peter James his hobby, his work and his very life with many of his closest and most long-standing friends coming from an extensive and appreciative constituency of amateur and professional lichenologists worldwide. From a chance interest in lichens on twigs on the shores of Lake Bala in North Wales, Peter expanded his horizons to encompass an interest in the lichens of many diverse areas of our planet during a career of some 60 years – an accomplishment achieved by very few. Lichenology owes Peter many substantial debts, as teacher, editor, author, guide, supervisor, colleague friend and confidant. The IAL was fortunate in having him as its first President and the BLS very much so as its first Editor. For all of those fortunate enough to know him, as a kind and loyal friend, he will be sorely missed and gratefully remembered in equal measure.

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David Galloway, Dunedin

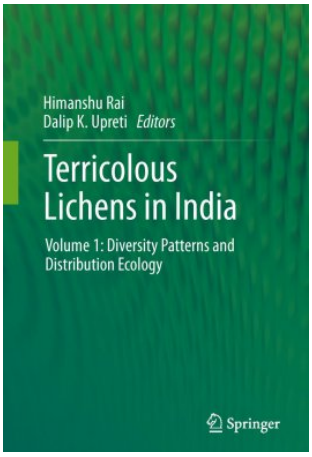
PERSONALIA

Massimo Bidussi (Norwegian University of Life Sciences, Ås) defended his PhD thesis on *Effects on climate change on lichen growth and metabolism* on 25 Apr 2014

Angela V. Sonina (Petrozavodsk State University, Russia) defended her PhD thesis on *Epilithic lichens in ecosystems of northwestern part of Russia: species diversity, ecology* on 4 June 2014

BOOK REVIEWS

RAI, H., UPRETI, D.K. (2013): Terricolous Lichens in India, Volume 1: Diversity Patterns and Distribution Ecology. Springer, 112 pp. ISBN-13: 9781461487357. Price: c. €113

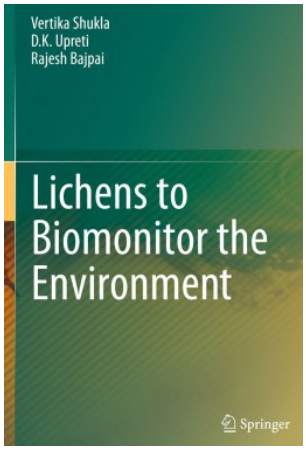


This review of soil-dwelling lichens in India contains five chapters written by various authors. Chapter 1 "Lichenological studies in India with reference to terricolous lichens" following some basics on lichens, provides a nicely presented and informative overview of lichenological research in India, from the first record of a lichen by Linnaeus and a summary of taxonomic studies (the main interest of Indian lichenology) to more recent studies (e.g. ethnopharmacological and ecological) with a focus on terricolous lichens. Before reading this book, the reviewer was unaware of the range of lichenological research in India, but it was clear from a literature search that few ecological studies on prominent topics such as lichen diversity and conservation exist; however, the editors appear to dominate these topics in India. Chapter 2 "Distribution ecology of soil crust lichens in India: A comparative assessment with global patterns" introduces terricolous lichens in soil crusts and summarizes the functional role of soil crusts in various habitats. Natural history notes on indicator lichens for different habitat types and their distribution in India are also reviewed. In the first part of Chapter 3 "Terricolous lichens in Himalayas: Patterns of species richness along elevation gradient" soil crusts and their functional role are again introduced, which is partly redundant. This study is based on "A compendium of the macrolichens from India, Nepal and Sri Lanka (Awasthi 2007)", which analysed the altitudinal distribution of 212 terricolous lichen species and common lichen families in the Himalayas. The title of Chapter 4 "Photobiont diversity in Indian *Cladonia* lichens, with special emphasis on the geographical patterns" sounds very promising, but since the study is based on only 20 *Cladonia* samples which were collected in different areas of India (mainly the Himalayas) the results are not very comprehensive and most likely do not cover the whole range of photobiont diversity of this genus across India. The study is thus preliminary, but it does call for further investigation of this interesting topic. In Chapter 5 "Photobiont diversity of soil crust lichens along substrate ecology and altitudinal gradients in Himalayas: A case study from Garhwal Himalaya", the photobiont identity of 150 lichen taxa was extracted from various references. The photobiont diversity along an altitudinal gradient was then described, based on the sampling locations of herbarium specimens. Instead of presenting purely descriptive results, the presentation would have profited from the use of statistical analyses to determine whether the composition of photobionts differs among ecological subgroups (lichens from different substrates) and whether the distribution of photobiont genera really differs along the altitudinal gradient. In summary, this book provides a useful review of Indian lichenology focussing on terricolous lichens. A general introduction would have been more appropriate to avoid redundant introductions to each chapter. Moreover, readability would have been improved by a unified writing style and editing. Despite these shortcomings the book does point out the possibilities for lichenological research in India and the need for studies to investigate the ecology of Indian

lichens which seems to be largely unknown in this huge and highly diverse country. As the hardcopy from this book is quite expensive (around €113), I suggest downloading the freely available eBook instead. It is worth consulting this book before planning a lichen study or a field trip in India.

Steffen Boch, Bern

SHUKLA, V., UPRETI, D.K., BAJPAL, R. (2014): Lichens to Biomonitor the Environment. New Delhi & Heidelberg: Springer. x + 185 pp, incl. numerous tables, coloured & b/w plates. ISBN 978-81-322-1503-5. Price: £90.00 hardback, £72.00 eBook; see also: *http://www.springer.com*



Although sections of this book, such as Chapter 4 on bioindicator species, are clearly addressed to the lichenologists of the Indian subcontinent, it will undoubtedly have much wider appeal. A broad spectrum of environmental factors known to be effectively monitored by lichens is covered, but, as would be expected from the main interests of the authors, more attention is given to human disturbances.

The introductory chapter deals succinctly with the nature of lichens, their development and establishment, and their role in biogeochemical weathering and biodeterioration. The second chapter addresses in more detail the isolation and characterization of secondary metabolites, and the third chapter briefly covers the criteria necessary for the selection of biomonitoring species. The next chapter is clearly intended for those in need of advice on the suitability and availability of particular species for monitoring eight different lichenographical regions of India (1. Western Himalayas, 2. Western Dry Region, 3. Gangetic Plain, 4. Eastern Himalayas, 5. Central India, 6. Western Ghats, 7. Eastern Ghats & Deccan Plateau, 8. Andaman & Nicobar Islands).

Chapter 5, the most important and more widely applicable section of the book which covers ecosystem monitoring, shows how lichens have been used extensively to monitor not only natural landscapes, but also human disturbances and disasters, particularly those resulting from pollution by gaseous emissions, heavy metals, arsenic (metalloids), polycyclic aromatic hydrocarbons (PAHs), persistent organic pollutants (POPs) and radionuclides. Other important topics covered in this chapter are climate change, assessment of paleoclimatic conditions (lichenometry), loss of biodiversity, and increasing urbanization, industrialization and tourism.

Chapter 6 is devoted to management and conservation, emphasizing the importance of lichens in ecosystem monitoring and how an integrated approach involving physicochemical analysis could establish such bioindicators as an integral part of air quality regulatory practices.

The text of this book is well illustrated and supported by detailed tabulated material. It is also rich in cited references (29 pages) which should prove of particular value to a worldwide readership. Sadly, its price puts it beyond the reach of many lichenologists and those engaged

in environmental monitoring in less developed countries that would clearly benefit from this well produced book. Otherwise to be recommended – libraries please take note!

Mark R. D. Seaward, Bradford

STEPANCHIKOVA, I.S., HIMELBRANT, D.E., KUZNETSOVA, E.S. (2013): Kronotskiy zapovednik – rezervat unikal'nikh lishaynikov [Kronotsky zapovednik – reserve of unique lichens]. 45 pp., incl. photos, pictures (In Russian). ISBN 978-5-98708-021-1. Price: not indicated.

This small, pocket-sized edition, limited to a print-run of only 500 copies, is an introduction to the unique lichen biota of one of the oldest nature reserves (zapovedniks) in Russia – Kronotsky zapovednik. This reserve in the remote Far East in Kamchatka Peninsula is one of the UNESCO World Heritage sites which embraces such well-known nature memorials as Valley of Geysers, Death Valley, the caldera of the extinct volcano Uzo, and old-growth taiga forests. In the past, the old-growth taiga forests covered a remarkable area of the Far East territory, but nowadays, after the almost 300 years of cutting, which has been the most intensive in the last 60–70 years, they are heavily fragmented and replaced by secondary forests. This all has affected the unique biota of the area, including lichens.

Information is provided for 21 lichens, including species of world importance such as *Erioderma pedicellatum*, and other old forest indicator species such as cyanolichens from the genera *Sticta* and *Nephroma*, pendulous lichens *Usnea longissima* and *Ramalina thrausta*, and calicioid lichens *Cyphelium karelicum* and *Chaenotheca phaeocephala*. The selected lichen belong to Red Data books for different levels, i.e. global (*Erioderma pedicellatum*), Russian or Kamtchatka. All species descriptions are accompanied by either photo or colour picture (drawn by E. Kuznetsova), or both. I would like to especially mention that on the last pages, there is a small glossary for introducing terms used for describing lichens.

The Editor

WIRTH, V., KIRSCBAUM, U. (2013) [“2014”]: Flechten einfach bestimmen. Ein zuverlässiger Führer zu den häufigsten Arten Mitteleuropas. – Wiebelsheim: Quelle & Meyer, 416 pp., hardcover, ISBN 978-3-494-01538-5; Price: 19.95 €.

This new guide to the lichens of Central Europe is not the first one published by these authors, but it is the most comprehensive, not being restricted to epiphytes as its forerunners. The German title might be translated as “Lichens easily determined” with the subtitle “A reliable guide to the most common species of Central Europe”. This popular guide contains nearly 400 species, including all growth forms and from all habitats, not only of the commonest lichens but also several rarer and a number of less conspicuous ones too. So beginners will in most cases be able to determine a reliable name for their findings with the help of the high-quality

illustrations, together with the most useful remarks and hints about similar looking species, and the best characters for separation. Here the long experience of both authors in lichen ecology, mapping, photographing and teaching are clearly visible.

After the necessary introduction to a book designed for lichen determination, it is divided into ecological groups; epiphytes, for example, are treated according to "lichens everywhere on trees", "lichens on trees in open land", "lichens on trees in lowland forests", "lichens on trees in mountainous forests" and "lichens on wood, stumps and on the foot of trees". Keys are provided to species groups and species. Unfortunately all scientific names are used without author citations and there is no explanation for this in the book. It is of course based on the recently published checklist of Germany (see *http://www.user.gwdg.de/~mhauck*) but how widely known is this? All species included in this book also receive German names based partly on recent formulations, but I doubt that a system not based on tradition but based on translations of scientific names is really helpful; such attempts have been made previously, but are almost forgotten.

The book clearly has the honest beginner in mind. I would have much appreciated this when I started lichenology nearly 40 years ago, because it certainly would have saved me a lot of time and avoided some mistakes. For the lichen expert it is still helpful as it contains very reliable information and is especially useful for those who teach students or plan their own introductory book as it offers some new ideas and approaches.

Peter Scholz, Schkeuditz & Prague

New members

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Some lichen photogalleries found from the web

Alan Silverside's Lichen Page *http://www.lichens.lastdragon.org*

British Lichens *http://www.britishlichens.co.uk*

Estonian lichen photos *http://www.ut.ee/ial5/k2n/lichphoto/*

Flechten und lichenicole Pilze by Paul Hoffmann *http://www.paulhofmann.at/flechte-nauswahl.html*

Flechtenmikroskopie by Mike Guwak and Dr. Ralf Wagner *http://www.flechten-mikroskopie.de*

Flora Islands: Fléttur *http://www.floraislands.is/flettur.html*

Irish lichens *http://www.irishlichens.ie*

ITALIC: the information system of Italian lichens *http://dbiodbs.univ.trieste.it/italic/italic03*

Leif and Anita Stridvall lichen gallery *http://www.stridvall.se/la/index_lichens.php*

Lichen gallery by Ulrik Kirschbaum *http://www.thm.de/kmub/136-persoenliche-seiten/kirschbaum-ulrich-94*

Lichen images on Wayne's word *http://waynesword.palomar.edu/lichlist.htm*

Lichens and lichenicolous fungi of Bolivia *http://botany.pl/lichens-bolivia/en,galeria,gallery,1.html*

Lichens of Almeria *http://liquenesdealmeria.blogspot.com*

Lichens of Australia and its Island Territories *http://www.anbg.gov.au/abrs/lichenlist/ALL_illustrations.html*

Lichens of Belgium, Luxemburg and northern France *http://www.lichenology.info/*

Nature of the Baikal region, Russia: lichens *http://nature.baikal.ru/mats.shtml?mt=ph&list=spec_lih*

Photo gallery of Japanese lichens *http://eng.lichenjapan.jp/*

Pictures of tropical lichens *http://www.tropicallichens.net*

Quelques photos de lichens et chp. lichénicoles par les membres de l'AFL *http://www2.ac-lille.fr/myconord/Photos_AFL/Photos_AFL_Liste.htm*

Sharnoff photos: lichens *http://www.sharnoffphotos.com/index.html*

The Lichen Photo Gallery by Einar Timdal *http://nhm2.uio.no/botanisk/lav/Photo_Gallery/*

Ticolichen: the Costa Rican Lichen Biodiversity Inventory *http://archive.fieldmuseum.org/ticolichen/images.html*

Ways of enlichement: Lichen photogallery *http://www.waysofenlichenment.net/lichens/*

IAL Advisory Committee

The cover-page illustration

Umbilicaria proboscidea by Bethia Brehmer, first published in *American Arctic Lichens* Vol 1. *Macrolichens* by J.W. Thomson