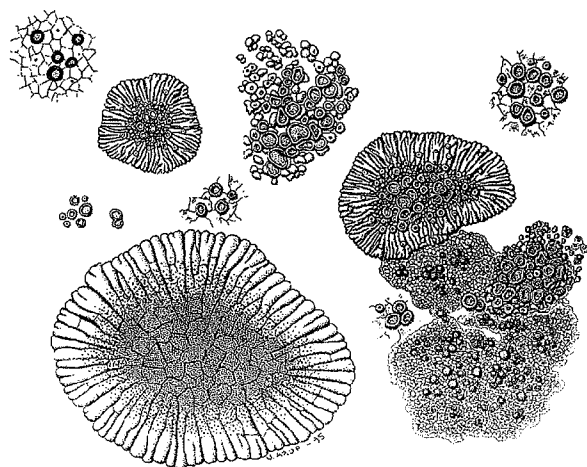


INTERNATIONAL LICHENOLOGICAL NEWSLETTER

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The opinions expressed in the *Newsletter* are not necessarily those held by the International Association for Lichenology

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 listserv 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 2001-2004) 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 five 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. 5) **Lichenology on-line**: information on Web sites devoted to lichens. 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 IAL 4 Symposium (Barcelona, Spain, 2000) are listed below, and will serve until 2004.

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ASSOCIATION NEWS

Towards IAL 5 – Tartu (Estonia), August 2004

The 5th IAL Congress will take place at the University of Tartu (Estonia) between August, 16 and 21, 2004. It will include 6 non-parallel oral sessions of half a day each, 6 poster sessions having the same titles as the oral sessions, 2 shorter workshops, and an exhibition on "Lichens and Education". IAL Council appointed a Convener for each session, who, together with two other colleagues (a Chairperson and a Poster-Chairperson) selected by her/him, will be responsible for the organization of each session. The Scientific Committee of IAL 5 is formed of the President of IAL, the Organizer of IAL 5, and all Conveners, Chairpersons and Poster session Organizers. The second circular and the pre-registration sheet will be distributed before May 30, 2003. Further, continuously updated information on IAL 5 is available at: <http://www.ut.ee/ial5/>

Session 1 - Systematics and evolution

Convener: Mats Wedin, Chairperson: David Hawksworth, Poster-Chairperson: Simone Louwhoff

An understanding of systematics and evolution is fundamental to all biology. It is a modern and exciting science, where recent progress and insights are overwhelming. This session will present a stimulating overview of recent research on the taxonomy, phylogeny and classification of lichens and lichenicolous fungi. We will include monographic revisions based on critical morphological and anatomical studies; major regional syntheses; major phylogenetic studies causing rethinking of classifications to better reflect natural relationships; and studies of co-evolution and character evolution utilizing phylogenies. The main session will have 8–10 oral presentations, including invited talks; we encourage posters in all areas of systematics, especially from those who never attended an IAL congress before.

Session 2 - Lichen Photobionts – physiological, ecological and phylogenetic aspects of their diversity

Convener: Thomas Friedl, Chairperson: Burkhardt Bidel, Poster-Chairperson: Kikki Palmqvist

Green algae and cyanobacteria are the photosynthetically active partners of lichen fungi. From the aspect of biodiversity it is surprising that lichen symbiosis embraces such diverse groups. The result is an astonishing diversity of physiological, biochemical, and metabolic features of lichens. Photobiont diversity is also a key-feature in the capability of lichens to colonize an enormous range of diverse habitats. Because of the paucity of morphological characters, molecular approaches are required for assessing photobiont diversity in lichens. We encourage contributions on all aspects of research on lichen photobionts, in particular on: a) their role in adaptation of lichens to their habitats; b) the physiology and biochemistry of their metabolism regarding interactions with fungi, nutrient uptake and carbon/nitrogen fixation; c) their diversity, with emphasis on molecular approaches to their identification, phylogenetic position and selectivity of lichen fungi towards their algal partners; d) their morphology and ultrastructure including novel techniques for their successful isolation and culturing.

Session 3 - Quality and Quantity: Maintaining Biological Diversity in Space and Time

Convener: Christoph Scheidegger, Chairperson: Irwin Brodo, Poster-Chairperson: Svetlana Chabanenko

This session will contribute to an understanding of the measurement, interpretation and maintenance of lichen diversity at different spatial and spatio-temporal scales. In recent years many red lists have contributed to our knowledge of the conservation status of lichens on a regional basis. But how far has lichen conservation biology contributed to the survival of species and local populations, and what is the scientific rationale for high-priority conservation efforts for locally endangered but globally widespread species? And, what methods are currently being used to measure and interpret lichen diversity? We encourage contributions on all aspects of Biodiversity research and Conservation Biology, but especially on: Lichen conservation in anthropogenic, traditional and multifunctional landscapes; population biology, population genetics and phylogeography (including vicariants and disjunctions) in lichen conservation strategies; methodology of monitoring lichens for conservation, e.g., red lists; measurement and interpretation of lichen diversity.

Session 4 - Contributions of lichen ecology to better understanding of lichens in ecosystems

Convener: Susan Will-Wolf, Chairperson: Bruce McCune, Poster-Chairperson: Per-Anders Esseen

The Ecology Session will address how different kinds of lichen ecological studies (including vegetation science, mineral cycling, population ecology, reproductive biology) contribute to understanding of lichens in ecosystems. Topics can include regional case studies of ecology of entire lichen communities; studies of ecological lichen guilds such as nitrogen-fixers or soil crust lichens; studies of some aspect of ecology of single or a few species of importance to selected ecosystems; modelling of community dynamics or habitat response; and new methods for ecological studies with lichens. The results of any such studies can potentially contribute to improvements in conservation or better management of lichen species and their ecosystems. Presentations should include a brief explanation of how contributions from the research can improve conservation or management of lichen species or communities. Presenters should also discuss to what extent the results can be generalized to other species or ecosystems.

Session 5 - Genes, Physiology and Structure

Convener: Peter Crittenden, Chairperson: Richard Beckett, Poster-Chairperson: Diane Fahselt

This session will be broad ranging and provide opportunities for speakers working in varied areas of lichen biology. It will encompass: a) lichen life cycles including development and dispersal of propagules, establishment and development of the thallus, thallus structure, turnover and decomposition lichen physiology including gas exchange, and nutrient and water relationships, b) primary and secondary biochemistry, c) genetics of mycobionts and photobionts including genetic variation and genetics of reproduction

Session 6 - Lichen Uses

Convener: Ole William Purvis, Chairperson: Mark R. Seaward, Poster-Chairperson: Stefano Loppi

The many and varied uses for lichens will form the focus for this special topic. Interest in lichen biomonitoring is rapidly growing and has probably never been greater owing

both to changes in legislation and a need to understand the effects of pollutants and global change on lichens and sensitive ecosystems. Biomonitoring in a broad sense will be considered including: a) Biomarkers as an early warning of effects, b) Links between lichen diversity / accumulation studies and epidemiology, c) Remote sensing of lichen-dominated ecosystems, d) Photographic monitoring employing image analysis and chlorophyll fluorescence, e) Herbarium / lichen recording databases as indicators of past environmental conditions. Other topics include: 1) Biodeterioration of ancient monuments and rock weathering. 2) Accumulation of heavy metals, mineral transformation and biogeochemical cycling of elements; bioremediation. 3) Adaptation to toxic environments and the quantification of secondary metabolite variation in relation to environmental stress, e.g. metal toxicity and UV-B radiation such as by formation of oxalates and pigments. 4) Lichenometry to date glacier retreat, ancient monuments etc. 5) Industrial uses including natural products and their use in pharmaceutical products. 6) Ethnolichenology and use of lichens for cultural and aesthetic purposes. 7) World-wide web educational resources.

Workshop 1 - In search for model organisms

Convener: Rosmarie Honegger

A small number of model organisms are centrally important in modern biology. They have a small genome, short reproductive cycles, are easy to cultivate, require little laboratory space and can be transformed. Their genome is now sequenced and large numbers of defined mutants are available which allow for exploring patterns of gene expression and gene function. However, alternatives have to be found when complex interkingdom interactions such as mycorrhization or lichenization are to be investigated. Are model systems available for studying the biology of lichen-forming fungi and their photobionts? Of central interest are gene expression in both partners during lichenization, mating systems, or fungal genes involved in secondary metabolism. Main problems are slow growth rates, lack of standardisation of axenic cultures, and poor reproducibility of resynthesis experiments under sterile conditions. Experimental lichenologists from all disciplines are invited to share their knowledge and expertise. With joined efforts we'll hopefully succeed in finding model organisms in lichenology.

Workshop 2 - Phylogenetic methods: Assembling the lichen tree of life

Convener: François Lutzoni

Reconstructing the phylogenetic history of all lichen-forming and allied fungi, algae and cyanobacteria would significantly enhance our understanding of all aspects of the lichen symbiosis. Despite the major contribution of PCR and substantial improvements to phylogenetic methods, our progress toward this goal has been minimal. This slow pace, which is not only due to technical difficulties in sequencing multiple loci across a broad spectrum of species and to computational limitations of handling large data sets, can be overcome by creative coordinating efforts and developing collaborations among lichenologists, phycologists, microbiologists, molecular biologists, computational biologists, and bioinformaticians. It is clear that we will not make any major progress toward this daunting goal, unless we develop drastically novel and innovative approaches. The main objective of this workshop is to present some of these new initiatives and methodological developments in various fields, and to identify through discussions and presentations what are the next steps the lichenological community should take to assemble an extensive and reliable lichen tree of life.

PRELIMINARY SCHEDULE OF IAL 5

Day	Morning (9–13)	Afternoon (15–19)	Evening
16. Aug. Mon	Registration	Registration	Picnic in Botanical Garden
17. Aug. Tue	Opening session	Opening of poster session	
18. Aug. Wed	Session 1	Session 2	
19. Aug. Thurs	Session 3	Workshop 1	IAL meeting
20. Aug. Frid	Session 4	Session 5	IAL Dinner
21. Aug. Sat	Session 6	Workshop 2	Farewell
22. Aug. Sun	Departures		

SCHEDULE OF A DAY

Morning session*		Afternoon session	
9.00.	I talk**	15.00.	I talk
9.20.	II talk	15.20.	II talk
9.40.	III talk	15.40.	III talk
10.00.	IV talk	16.00.	IV talk
10.20.	V talk	16.20.	V talk
10.40.	Coffee break (30 min)	16.40.	Coffee break (30 min)
11.10.	VI talk	17.10.	VI talk
11.30.	VII talk	17.30.	VII talk
11.50.	VIII talk	17.50.	VIII talk
12.10.	IX talk	18.10.	IX talk
12.30.	X talk	18.30.	X talk
12.50.	Golden thread from Chairperson	18.50.	Golden thread from Chairperson
13.00.	END of the session; LUNCH	19.00.	END of the session

* – a session lasts 4 hours (incl. coffee-break) and includes 10 talks

** – a talk lasts 20 min (15 min for a presentation + 5 min for discussion).

The Sylvia Sharnoff Education Award – First Call

On the occasion of the 5th International Congress of Lichenology, which will be held in Tartu (Estonia) in August 2004, the International Association for Lichenology (IAL) will introduce and present the Sylvia Sharnoff Education Award. The Award is dedicated to the memory of Sylvia Duran Sharnoff, a remarkable lichen photographer, who conceived of the idea of a colour-illustrated, popularized but scientifically accurate treatment of the lichens of North America and, with her husband, Stephen Sharnoff, produced almost 1000 superb lichen photographs for the book. The award will be given to the best web page devoted to lichens, prepared by a class or a school at pre-university level, in the years 2000 to 2003 (in any language). Any aspect of lichen biology used in an educational program would be acceptable. The selection of the Award winner[s] will be entrusted to an International Committee of three members, including a non-lichenological expert in the field of education, and will involve a pre-screening of the web pages by various national/regional lichenological societies worldwide. The main evaluation criteria will be: aesthetic appeal, clarity, educational impact; lichenological accuracy, useful links, and practicality for the targeted age group. A metadata web page with links to all of the submitted web pages, and a publication devoted to the Award will be forwarded to all participants. A printed selection of the best web pages will constitute the core of an

exhibition on "Lichens and Education", which will be inaugurated in Tartu in August 2004, and which will then circulate to several other cities and towns elsewhere in the world. To apply, an interested class or school can use a simple form available on-line, with additional information (after January 15, 2003), at: http://dbiodbs.univ.trieste.it/lichens/Sharnoff_Award. Deadline for submissions is December 31, 2003.

The President

Acharius Medal given to David Hawksworth on the occasion of IMC 7

David Leslie Hawksworth is certainly one of the most productive and innovative lichenologists of our time. He has authored (or coauthored) approximately 500 scientific papers and 50 books on Lichenology (including many on non-lichenized fungi or the larger field of Mycology) covering such diverse topics as systematics, nomenclature, ecology, floristics, pollution monitoring, botanical history, biodiversity, and conservation. Some of these publications are basic references, not only in Mycology (including Lichenology), but in broader scientific fields, for example, in estimating the number of fungi on the Earth, in introducing micro-organisms and fungi to international discussions of biodiversity, in developing (with F. Rose) the lichen-based scale for the estimating levels of sulphur dioxide air pollution, and, most especially, in integrating lichens into their appropriate place among the fungi through his work on several editions of the Dictionary of the Fungi, Index of Fungi and Systema Ascomycetum (with O. Eriksson). It was David who revived international research on lichenicolous fungi and was a prime mover in attempts to make botanical, indeed, biological nomenclature more efficient and "user friendly." Above all, David was persuasive in showing our mycological colleagues that lichenized fungi should not be ignored.

David Hawksworth has also contributed a great deal as a leader in the field of the scientific management. As Director of the International Mycological Institute (CABI) for 14 years (1983–97), David developed the Institute into the world's premier mycological centre. His participation in the International Union of Biological Sciences (as President from 1994–97) contributed much to the development of programmes in biodiversity and bionomenclature. As a coordinator for the GEF/UNEP Global Biodiversity Assessment, he enhanced an appreciation of the scientific aspects of biodiversity through edited volumes and articles, stressing the importance of an improved understanding of the sustainable use of resources. This aspect of his scientific work has raised the profile of Mycology and Lichenology among the biological sciences. David has been member of numerous important scientific societies and committees, often serving as president, as he has for the British Lichen Society.

Last but not least, David has demonstrated exceptional competence as an editor of scientific journals and books, and his scientific advice is sought world-wide.

Due to his scientific and administrative achievements, David Hawksworth is probably the most visible mycologist in the world. His awareness of almost everything that has been written about lichens and other fungi, his openness to innovation in science, and his enthusiastic helpfulness to colleagues and friends make him a deserving recipient of the Acharius Medal.

Ernie Brodo, Toronto & Ana Crespo, Madrid

Mason Hale Award given to Scott Kroken on the occasion of IMC 7

The Mason Hale Award was presented to Scott Kroken in the country of his ancestors. Initially, Scott was not educated as a lichenologist. During his masters thesis at the University of Wisconsin at Madison he studied resistant cell wall materials of bryophytes and charophytes. After moving to Berkeley he then became interested in the population genetics of lichens at the DNA-level, which was a poorly explored field at that time, except for the work in *Cladonia* by Paula DePriest. With this background, Scott started a doctoral thesis with John Taylor as supervisor, and he selected an interesting case in lichenology. The title of his thesis was "Cryptic speciation and the role of sex in the lichenized fungus *Letharia*".

The genus *Letharia* includes a classic species pair with the fertile *L. columbiana* and the sterile *L. vulpina*. Most lichenologists distinguished these two species on the basis of their dispersal strategies. Scott was interested whether this concept would also be corroborated by molecular studies and started to investigate the evolutionary history and population biology of both the mycobionts and the photobiont. Scott's approach was different from other intraspecific approaches at that time. He did not rely on a single genetic locus, but tried to find as many gene loci as possible to look for congruence of the gene genealogies. To find appropriate gene loci was a pioneering work which involved primer design in a heterologous approach and the development of homologous loci using arbitrary primers (anonymous loci). Absence of congruence between the genealogies of these multiple loci signified genetic exchange, whereas congruent parts of the tree topologies indicated clonality or indirectly, the lack of genetic exchange. Using this approach, Scott found evidence for genetic isolation and he suggested six phylogenetic species in the *Letharia columbiana/vulpicida* complex.

The thesis is divided into three major chapters: A gene genealogical approach to determine species boundaries and reproductive mode, a demonstration of obligately outbreeding in a frequently sexual species and a rarely sexual species, and the symbiosis with the green alga *Trebouxia*. Scott also detected outcrossing in two of the phylogenetic species by comparing the genotypes in maternal thalli and apothecia. Several phylogenetic species were also suggested for the photobionts of *Letharia*, which all belong to the *Trebouxia jamesii* complex. Scott's thesis paved the way for the following generation to further explore lichen population genetics and population history of both partners in the symbiotic system.

The Editor

NEWS

Assembling the lichen tree of life

On January 1, 2003, a new collaborative project funded by the National Science Foundation titled Assembling the Fungal Tree Of Life (AFTOL) was initiated. This four-year project will develop broad datasets of molecular and subcellular characters, which will be accessible via the world-wide web, in continuously updated databases. Seven molecular regions will be sampled (nuc-ssu rDNA, nuc-lsu rDNA, RPB2, RPB1, EF-1a, ATP6, and ITS) for a total of about 10 kb per species in approximately 1500 species in all major groups of Fungi. Diverse phylogenetic analyses of these data will be performed,

including analyses that incorporate evidence from subcellular characters. This project is based in five laboratories at four universities. Four laboratories will focus on acquisition and analysis of molecular data from the major groups of Fungi, and one laboratory will focus on generation of subcellular data across all groups of fungi. The Vilgalys and Lutzoni laboratories at Duke University are providing a central facility for high-throughput DNA sequencing and bioinformatics. Core responsibilities of the participating laboratories are outlined below:

Hibbett (Clark University): Collection of molecular data from Basidiomycota (= 400 species).

Lutzoni (Duke University): Collection of molecular data from lichen-forming and allied Ascomycota (= 400 species); bioinformatics.

McLaughlin (University of Minnesota): Collection and databasing of subcellular characters.

Spatafora (Oregon State University): Collection of molecular data from nonlichenized Ascomycota (= 400 species).

Vilgalys (Duke University): Collection of molecular data from Chytridiomycota and Zygomycota (= 300 species).

Community participation is an essential component of the proposed research. AFTOL will involve the fungal systematics community at all stages of the project. The preliminary list of 1500 species to be studied has been developed in consultation with taxonomic experts, many of whom have agreed to provide samples. The policy of AFTOL is for all data to be released via the web as soon as they have been validated, and all participants who contributed materials will be invited to coauthor

publications that report new data derived from those materials. Already, 113 fungal systematists in 23 countries have indicated that they will participate in AFTOL, 33 of whom are lichenologists (from 15 countries).

The training of Ph.D. students and postdoctoral researchers is an important component of AFTOL. Collaborating graduate students and postdoctoral research associates working on lichen-forming fungi will be supported for 3-12 month visits to Duke University during which they will receive training (including phylogenetics) and contribute to the data-collection goals of the project. More information about AFTOL can be obtained at http://ocid.nacse.org/research/deephyphae/htmls/AFTOL_proposal.html.

Lichenologists who would like to be part of this project or would like a member of their lab to visit Duke University, and who have not done so yet, can contact François Lutzoni flutzoni@duke.edu.

François Lutzoni, Durham

Towards a catalogue of the lichens of the Alps

The Alps are one of the biologically best-known mountain systems worldwide. Lichenological research in the Alps has been very intense for more than 200 years. Modern, updated checklists are available (or in an advanced state of completion) for all of the countries that host a part of the Alpine system: Austria, Slovenia, Italy, Germany (Bavaria), Switzerland and France. This fortunate situation was the reason of a meeting of 6 lichenologists (Ph. Clerc, T. Feuerer, J. Hafellner, H. Mayrhofer, P.L. Nimis, and Cl. Roux), held on December 7 at the Department of Biology of the University of Trieste. S. Martellos and M. Tretiach also participated. In spite of the cold bora-wind blowing at more than 130 km/hr, or maybe just because of it, the meeting was fruitful and

constructive. A general agreement was reached on potentially tricky points such as delimitation of the Alpine area, altitudinal distribution of the taxa, treatment of poorly known taxa, and even nomenclatorial matters (generic concepts). The project will have a duration of one year, at the end of which the participants hope to produce an updated general catalogue of all lichenized fungi hitherto known for the Alps, with a distributional breakdown among different districts.

Pier Luigi Nimis, Trieste

Moebios

The Sixth Framework Programme for Research, Technological Development and Demonstration of the European Community funds Integrated Projects and Networks of Excellence (NoE) as instruments for funding research. Prior to the calls for proposals and formal adoption of FP6, the Commission consulted the research community and asked to submit Expressions of Interest (EoI). The actual target of the Commission was the development of research priorities according to the readiness of the European scientific community. One of the topics within the Thematic Areas included Biodiversity in the context of Global Change and Sustainable development or ecosystem functioning.

With this background, a lichenological NoE concerning these objectives was envisioned under the acronym Moebios (MONitoring the Effects of global environmental change on the BIOdiversity of Sensitive organisms). A short summary in the CORDIS web pages describes the initiative. http://eoi.cordis.lu/search_form.cfm. Numerous institutions announced their interest in Moebios, hence, whatever the outcome of FP6 will be, new opportunities for cooperations are now envisioned among lichenologists and researchers in other fields.

Eva Barreno, Valencia

Postdoctoral grant available at Umeå University, Sweden

A postdoctoral grant is available within the project "The lichenicolous (lichen-inhabiting) fungi of Sweden", covering a two-year period. This project is part of the Swedish Taxonomy Initiative (http://www.artdata.slu.se/Svenska_artprojektet_Eng.htm). The successful applicant will be responsible for summarising and updating the current knowledge of Swedish lichenicolous fungi. The work will involve: fieldwork in northern Scandinavia; revisions of the taxonomy and nomenclature of the Swedish lichenicolous taxa; the production of scientific treatments to be published internationally in refereed journals, and/or monograph series; the production of a searchable database of literature dealing with lichenicolous fungi; and studies on the evolution of the lichenicolous traits and life-forms. The aim is to produce a complete treatise of the Swedish lichenicolous fungi. Candidates should have a PhD (or be expected to get one in the near future) in a relevant field, and have substantial documented experience of microscopy and descriptive taxonomy of fungi and/or lichens. The successful candidate is expected to start in the beginning of 2003.

Putative candidates are encouraged to address informal enquiries to Mats Wedin (+46-90-786 7045 or mats.wedin@eg.umu.se). Candidates should send a detailed CV, together with the names and addresses of two referees to: Dr Mats Wedin, Dept. of Ecology and Environmental Science, Umeå University, SE-901 87 Umeå, Sweden

Mats Wedin, Umeå

New edition of the Lichen Flora of Great Britain and Ireland

Since the publication of the current Flora in 1992, considerable nomenclatural changes have occurred and new species added to the Flora. In addition there are not many copies of the 1st edition remaining. A large meeting of all parties concerned at the Natural History Museum in April 2001 recommended the publication of a revised edition rather than reissuing the first edition to bring the Flora up-to-date, revise the keys and rectify mistakes. The first task has been completed; the publication of a new *Checklist of Lichens of Great Britain and Ireland* (Brian J. Coppins, 2002, British Lichen Society, 87pp.) including lists of presumed extinct and doubtful records. Oliver Gilbert has led the effort and is joined by Peter James and Clifford Smith in a small co-ordinating committee. Paul Kirk, a mycologist at CABI, transformed the digitized edition of the Flora into a database *proforma* from which generic files are being revised by the various authors. The Flora will be linked, at some future date, with photographs, chromatographs, distribution maps, etc., and be available on-line. It is hoped that this approach will enable rapid publication of a hard copy in 2003 and an integrated on-line version in the future.

Pat Wolseley, London

Annual meeting of the American Bryological and Lichenological Society, Mobile, Alabama, July 26–31, 2003

ABLS will soon be sending announcements of the meeting to its membership, also have a look at <http://www.botany2003.org/>

IBC XVII in Vienna, 2005

The scientific committee is working on a programme. A basic structure of 11 themes (e.g. diversity) has been established, to which individual fields (e.g. lichenology) will be assigned. Symposia can be suggested to the organizers after a call for symposia to be issued in the first circular, which is planned for March, 2003. The symposia will then be assigned to the fields by the coordinators of the themes. A web site has been established: <http://www.botanik.univie.ac.at/ibc2005/ibc2005.htm>

The Editor

Personalia

Ted Ahti (Helsinki) visited Tsukuba (TNS), Japan, in November 2002 to study Y. Asahina's and other East Asian collections of *Cladonia*. Thereafter he, **Hiroyuki Kashiwadani** (Tsukuba) and **Kwang-Hee Moon** (Seoul) travelled in Taiwan, in part with **Ming-Jou Lai** (Taichung), to collect lichens in the mountains of Taichung County.

Barbara Emmerer (Graz, Austria) started a 2-year project financed by the Austrian Science Fund (FWF) on vegetatively reproducing crustose lichens in (neo)tropical lowland rain forests supervised by **Josef Hafellner** (Graz). The main goal of this study is the circumscription and species delimitation of lichen taxa within these neglected group of organisms in neotropical rain forests, to clarify them taxonomically and to elucidate their species diversity. Furthermore a scheme of the modes of vegetative reproduction applicable to rain forest lichens will be built up. The project will concentrate on the dominating family Thelotremaaceae and will include a monographic treatment of vegetatively reproducing taxa of this family. Material on loan from all parts of the world is

highly welcome! Please ignore no more sterile/soredious/isidous corticolous crustose lichens on your tropical excursions, collect and send them to Barbara (barbara.emmerer@uni-graz.at).

Scott LaGreca (Cambridge, USA) has been busy processing old, backlogged lichen specimens in the Farlow Herbarium (FH): the Clark University Lichen Herbarium (formerly at CUW) is now incorporated in FH, as are the lichens collected in 1939 at Brintnell Lake (formerly Glacier Lake), NWT, Canada, by Lucy C. Raup. Material from both of these collections are available for exchange on a specimen-by-specimen basis: please email lichens@oeb.harvard.edu if you are interested. In addition, Scott has been re-arranging and updating the nomenclature of FH's Lichen Herbarium: it is now half-way done! Most recently, Scott is putting the finishing touches on a lichen and bryophyte flora of the Boston Harbor Islands (sponsored by the US National Park Service), done in collaboration with **Ray Abair**, **Doug Greene**, **Elizabeth Kneiper**, **Elisabeth Lay**, and **Mary Lincoln** (to be published soon).

Jacob Garty (University of Tel Aviv, Israel) and **Stergios Pirintsos** (University of Crete, Greece) visited **Stefano Loppi** (University of Siena, Italy) from October 20 to 23, 2002. They discussed common and future research projects, and went on a field excursion in the Mt. Amiata area to visit the local geothermal area.

Frank Kauff (Durham), who completed his Ph.D. with Prof. **Burkhard Bùdel** (Kaiserslautern, Germany), has now joined **François Lutzoni's** lab at Duke University for a two-year Postdoctoral Research Associate position. He will conduct simulation studies to develop a new test to detect phylogenetic incongruencies among data partitions, and will also be part of the bioinformatic team for the AFTOL (Assembling the Fungal Tree Of Life) project, which will officially start January 1, 2003. **Stefan Zoller**, as recently completed his postdoctoral research in François' lab and has taken a position at the North Carolina Supercomputer Center. **Cécile Gueidan** (Alsace, France) has initiated a Ph.D. this Fall in François' lab, where she will conduct a systematic study within the Verrucariales and will be one of the Ph.D. students directly involved with the AFTOL project. **Ester Gaya** (Ph.D. student with Prof. **Pere Navarro-Rosines**, Barcelona, Spain) visited François Lutzoni's lab at Duke for 5 weeks, and **Gert Helms** (Ph.D. student with Prof. **Thomas Friedl**, Göttingen, Germany) spent three months in this lab. **Ester**, was able to complete one chapter of her thesis on the systematics of *Caloplaca saxicola* group and submitted one manuscript for publication during her visit. **Gert** gathered all the data needed for a collaborative project on group I intron evolution in collaboration with Prof. **Debashish Bhattacharya** (University of Iowa, USA).

Martin Kukwa (Wroclaw) visited the University of Bergen in April, to study *Lepraria* types and other sorediate, crustose sterile taxa. The aim was to recognise the variability of *Lepraria*, to learn how to recognise difficult sterile crusts, which will now be studied in Poland. In November, Martin came to the University of Graz, to widen his knowledge about the distribution of sterile lichens (focusing on *Lepraria*) and to revise some collections. He is now finishing his doctoral thesis on *Lepraria* in Poland. It contains descriptions of each species, information about their distribution in Poland, on the background of general distribution, ecological requirements, chemical and morphological variability.

Magdalena Opanowicz (Wroclaw) visited **Martin Grube** in Graz to get an introduction into molecular work and to continue her thesis on *Flavocetraria*, supervised by Prof. **Wieslaw Faltynowicz**.

Christian Printzen (Frankfurt) has started a new position as curator of cryptogams at the Forschungsinstitut Senckenberg in Frankfurt, Germany. The Senckenberg Museum is a centre of biodiversity research and the botanical collections are among the largest in Germany, though the cryptogamic herbarium is rarely cited in systematic publications. Important lichen collections include the herbaria of Metzler and Scriba (*Cladonia* and *Stereocaulon*) and often complete sets of some 19th century exsiccatae (e. g. Arnold, Hepp, Nylander & Norrlin, Rabenhorst). A cryptogamic section at the Senckenberg museum did not exist until now. Many collections are not properly mounted, but in recent years progress has been made with the help of volunteers. Besides the necessary curatorial work, Christian will continue research in lichen systematics and population genetics.

Roger Rosentreter, hosted the Australian biological soil crust researcher, **David Eldridge**, for a three month visit to Boise, Idaho, USA this last fall semester. We collaborated on methods to measure the hydrologic effects and over all health of arid ecosystems by recording the abundance and type of biological soil crusts. David taught two courses at the local University and spent some time touring the western States. Roger also attended the IAL field meetings in China.

By 1999, **Mohammad Sohrabi** started to study the lichen flora of Iran at the Iranian Research Institute of Forests and Rangelands. He has focused on the north of Iran (Azerbaijan to Khorassan or Hyrcanian Region). He collected more than 2500 lichen samples so far. About half of this collection is kept at the Research institute. Mohammad is in contact with European investigators, and his main goal is now to establish the first Iranian lichen herbarium. Mohammad is working under isolated circumstances and would appreciate any advice from experienced lichenologist on how to proceed with his interests.

Since 1997, **Laurens Sparrius** (Leiden University, The Netherlands) is working on European and Asian (China and Taiwan) lichens. He is currently a MSc student of **André Aptroot** at CBS, from November 2002 until June 2003. He will make a taxonomic study of *Enterographa*, especially the tropical, corticolous species.

Göran Thor has a new position as Senior Lecturer at the SLU (Swedish University of Agricultural Sciences), Department of Conservation Biology, Uppsala from September 2002. The lichen group at the department currently also includes **Alexandro (Sandro) Caruso** (Ph.D. student; lichens on forest residue harvest), **Per Johansson** (Ph.D. student; abundance, distribution and species richness of epiphytic lichens) and five M.Sc. students. S. Caruso, who has connections in Italy, actually had **P. L. Nimis** as a teacher in 1997 when studying biology in Trieste. **Nils Högborg** at the Department of Forest Mycology and Pathology, SLU is also associated with the lichen group, being involved in joint research projects on *Fuscidea* and *Letharia*. **Jenny Arnerup** will join the group in January 2003 and will study the phylogeny of *Fuscidea* and allied genera in Fuscideaceae using molecular methods (a project supported by the Swedish Taxonomy Initiative). She would greatly appreciate fresh material of *Fuscidea*, *Lettauia*, *Maronea*, *Orphniospora*, *Ropalospora* and *Sarrameana* from outside Sweden. If you have such material, please contact G. Thor (goran.thor@nrvb.slu.se). G. Thor is, besides teaching, involved in

research projects in lichen dispersal and lichen taxonomy. In November/December 2002 he also arranged a two weeks Ph.D. course in lichenology with 12 participants.

Mikhail Zhurbenko (St. Petersburg) visited the University of Graz in November to continue joint studies with **Josef Hafellner** on lichenicolous fungi.

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Obituary: Georges Clauzade, 1914–2002

Georges Clauzade passed away on July 10, 2002 at the age of 88. I had the good fortune to be his student, first at Apt High School in Vaucluse, and then at the University, where he instilled in me his passion for lichenology. After my undergraduate studies, he continued to guide and counsel me with generosity and efficaciousness, especially during my thesis work. We not only had a good relationship as professor and student, but also soon formed an indestructible friendship, and we rapidly established between us a true scientific symbiosis. This resulted in the collaboration and publication of three books and 23 papers and notes in lichenology, listed in a special issue of the Bulletin of the Linnean Society of Provence, *Hommage à Georges Clauzade*, which appeared in 1984.

Georges was born in Marseilles on September 2, 1914. Upon completion of his studies at Thiers High School in Marseilles, between 1925 and 1932, he received his diploma in science with a speciality in mathematics. He then studied at the University between 1932 and 1935, in the faculty of science of Marseilles. He was an outstanding student and obtained a bachelor's degree in the natural sciences with certificates in geology, botany and chemistry, followed by a master degree with a thesis on the geology of the western part of the Sainte-Baume Mountains. Two years later, in 1937, he passed the final teachers' examination (agrégation) in the natural sciences and became a natural science teacher at the high school in Amiens from 1936 to 1939, and then in Marseilles from 1939 to 1947 (1939–1940, seconded from Lakanal High School; 1941–1945, at Thiers High School; 1945–47, at the Marseillevy High School). From 1947 to 1966 he taught at Apt High School in Vaucluse, where, over the years, he built up a remarkable natural science collection, which today is maintained in the Georges Clauzade Room, inaugurated in June 2002 in the new high school, under the initiative of Marie-Thérèse Ziano, Professor of biology and geology.

In 1947, Georges became a student of the famous lichenologist Dr. Maurice Bouly de Lesdain, and, when not fulfilling his teaching obligations, spent his time on scientific studies of lichens, mainly in systematics, floristics and phytosociology. His work rapidly attained international renown, and in 1966 he obtained permission to work full-time on lichenology for the next four years. Whereas officially working for the faculty of Saint-Jérôme in Marseilles, he was located in the faculty of pharmacy, sharing the building with Yves Rondon. During this period Georges devoted his time to the study of the lichens of Provence and wrote a flora of the lichens of France, in collaboration with Paul Ozenda, which was published in 1970. This was a large volume, which rapidly became an indispensable tool for all European lichenologists, and became known as "The Clauzenda." The volume also provided an impetus for the further study of lichenology in France.

Georges returned to secondary education from 1970 to 1975, and taught at the Avignon High School in Vaucluse. In January 1975 he retired from teaching, but not from his scientific pursuits.

In 1976, Georges and I organized and directed the first excursion of the French Lichenological Society in Provence, and he became the honorary president. In the same year he published a world-wide Flora of the non-lichenized lichenicolous fungi, which spurred a renewed interest in the study of this group in Europe. Between 1975 and 1979, he directed my thesis work on the saxicolous/calicolous lichens of southeastern France, and he often accompanied me in the field and verified my identifications.

Between 1980 and 1985, we worked continuously on a project close to our hearts, the publication, by an independent publisher, of a flora of western Europe, in the international language of Esperanto. This book, *Likenoj de Okcidenta Eŭropo*, which appeared in 1985, became an important reference book for European lichenologists. It has been recently translated into French by Paulette Ravel, who has incorporated information from three later supplements into the original keys. In 1989, in collaboration with the Luxembourg lichenologist and mycologist Paul Diederich and I, he wrote the world-wide flora of the non-lichenized lichenicolous fungi, also in Esperanto.

So it is in the world of lichenology that Georges Clauzade has had such great influence, not only in France, where he supervised several students, but also internationally. In Spain, Xavier Llimona (Barcelona) has proclaimed that he is of the "Clauzade School."

The International Association of Lichenology honoured Georges when they awarded him the Acharius medal during IAL4 in Barcelona. But we cannot overlook the fact that he was also a complete naturalist, a veritable font of science, especially in botany (mycology, bryology and phanerogamy), zoology and geology. He played an important role in the activities of several natural science societies (especially the Linnean Society of Provence, the Botanical Society of Vaucluse, the Mycology Society of Vaucluse and the Natural Sciences Society of Vaucluse).

Moreover, he was active in pursuits outside the world of science. He was, for example, a militant pacifist who actively participated in a number of demonstrations for peace, notably for the campaign against nuclear weapons. Aware of the importance of linguistic problems, particularly in the scientific realm, he promoted the use of Esperanto, and unlike others, he was not content to just talk about it, but he practised it in writing and in speech. He was the first lichenologist to use Esperanto in his publications, in 1950, and recently he reviewed the *Plena ilustrita vortaro de Esperanto* (Complete Illustrated Dictionary of Esperanto), published in July 2002, as a specialist of botany, biology, geology, physiology and zoology.

So a scientist and an exceptional person has vanished and, in conclusion, I would like to render this last homage to the man was, for more than 40 years, my mentor and friend. He will have my infinite gratitude.

Claude Roux, Marseilles

(Translation: Molly McMullen, Cécile Gueidan and Valérie Reeb)

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New Literature

LLIMONA, X., LUMBSCH, H.T. & OTT, S. (eds) 2002. **Progress and Problems in Lichenology at the turn of the Millenium**. Proceedings of the Fourth Symposium of the International Association for Lichenology (IAL4) held at the Universitat de Barcelona, Barcelona, Spain on 3–8. September 2000. Bibliotheca Lichenologica 82: 1–326. 27 tables and 147 figures in the text, paperback, 23 × 14cm. ISBN: 3-443-58061-0. J. Cramer in der Gebr. Borntraeger Verlagsbuchhandlung: Berlin, Stuttgart. price: 52.00 EUR.

This book is a collection of oral and poster contributions to the Fourth International Lichenological Congress (IAL 4). It might be noted that this is not the complete compilation and that other contributions to this meeting were published as a special volume of *Symbiosis*, or independently in other journals, the present volume is subdivided into several sections, which are representative for the methodological breadth as it is still a sign of the holistic approach in lichenology. The numbers of contributions are given in brackets with the sections: Systematics of the mycobiont (3), morphological structure (1), lichen diversity and biogeography (5), molecular approach to lichen phylogeny (2), lichenicolous fungi (2), bioindication using lichens (10), storage and retrieval of lichen data (3), strategies for the sustainable management of lichen biodiversity (1), lichen dominated communities (1). The number of articles in each section is only partly representative for the total number of contributions at the meeting. While only two of the molecular phylogenetic studies and one article on morphology and structure found their way into this book, the higher number of contributions on bioindication agree with the practical focus on this topic. Some odd errors may of course be found. For example it will be difficult to determine *Bacidia* with a key that lacks the differential character state in the second dichotomy. Otherwise, there is a number of high quality articles. Most of them are based on solid work and well-accepted approaches, which add steadily to our knowledge

about lichens. The pace of progress in lichenology did not care much about the turn of the millenium. It may be noted that it took two years until the presentations of the congress were published. Various reasons may account for this, but some of the authors would certainly have hoped to include the publications earlier in their curriculum. Anyway, the book shall be regarded as a presentation of the state of the art in selected lichenological fields, and therefore it should not be missing from a lichenological library.

The Editor

ETAYO, J. 2002. Aportación al conocimiento de los hongos liquenícolas de Colombia. – Bibliotheca Lichenologica, Band 84: 1–154, 59 figures in the text, paperback, 23 × 14cm. ISBN 3-443-58063-7. J. Cramer in der Gebr. Borntraeger Verlagsbuchhandlung: Berlin, Stuttgart. price: 58.00 EUR.

After several remarkable contributions to the lichenicolous fungi of southwestern Europe and Macaronesia, J. Etayo extended his interest to Central and South America. Results of a relatively short period of field work in high altitudes of Colombia are presented in this volume of Bibliotheca Lichenologica series.

Altogether 104 species are recorded of which 41 in a wide range of genera have been described as new and those are treated in detail and depicted by photos and high standard line drawings. As several of them could not be assigned to a known genus, the author introduces also the new genera *Globonectria*, *Hypotachynicola*, *Nigromacula*, and *Rhagadostomella*. Keys to species are provided for several genera, particularly those with several species in the study area, some on a world-wide basis, others for smaller areas (e.g. Colombia). The host genera *Hypotrachyna* (26 species) and *Sticta* (20 species) had the highest numbers of lichenicolous fungi. Although mainly dealing with non-lichenized lichenicolous taxa, the paper includes also the first record of *Vezdaea aestivalis* from South America.

The treatment written in Spanish represents a first major contribution to the knowledge of lichenicolous fungi in the Andes.

Josef Hafellner, Graz

REPORTS

Reports from local lichenological societies

Sandy Coppins is now president of the **British Lichen Society** and the society is very involved with numerous activities in Britain including preparing a new edition of the Lichen Flora (separate note). 2002 saw the publication of numerous milestones by Coppins including the *Checklist of Lichens of Great Britain and Ireland* and more recently the very useful *Indices of Ecological Continuity for Woodland Epiphytic Lichen Habitats in the British Isles* by A.M. and B.J. Coppins (for other publications and availability see the website at www.theBLS.org.uk).

The British Lichen Society still has half its membership abroad (see ILN 35/1), and many of you regularly attend field meetings here. For lichenologists at home and abroad the field meetings are undoubtedly one of the big attractions, and Ireland was no exception last year, being unusually bathed in sunshine for the spring meeting in Donegal. This

western outpost of the British Isles produced an extraordinary variety of lichens written up Ivan Pedley *et al.* in the Winter Bulletin. Peter James led a summer workshop on the genus *Cladonia* at Blencathra, and as usual had put together a selection of specimens from the NHM of every species known to Britain for participants to consult, which together with his lectures, provided an excellent taxonomic overview of this genus in Britain. This meeting also produced a new record for Britain – *Cladonia monomorpha*.

Although all future events of the BLS are on the Societies website, it is worth bringing a few of next year's meetings to your attention. The whiff of nitrogen across the landscape and the development of European indicator scales has stimulated a workshop on Nitrogen at Nettlecombe Court, Somerset between 24–27th February with the objective of producing an overview document and recommendations. Two further BLS meetings are to be held consecutively at Nettlecombe Court from 28th July–3rd August; a four day workshop on Physciaceae with Peter James as tutor followed by a 3-day education project workshop organized by Barbara Hilton, and directed towards the development of project material suitable for use in schools and colleges of further education. We hope that this will provide material for the Lichens and Education Exhibition at IAL 5 in Tartu, Estonia. Brian Coppins is leading a spring workshop on the Graphidion in wonderful lichen-rich sites in the west of Scotland in Argyll. If you are interested in this one you should contact Brian fast as this will get booked up quickly.

Pat Wolseley, London

The annual meeting of the **Italian Lichen Society** took place in Padova from 24 to 26 October 2002, (program details can be found at: <http://dbiodbs.univ.trieste.it/sli/conv2002.html>). More than 100 participants attended. **Jacob Garty** (University of Tel Aviv, Israel) and **Stergios Pirintsos** (University of Crete, Greece) attended as invited speakers. The first day was devoted to the theme "Lichens and ecological factors", with contributions spanning from the distribution of *Lobarion*, the effects of ecological variables on lichen diversity, the ecology of sorediate lichens, to a totally theoretical lecture titled "what does lichen ecology mean?". Other talks were centred on the relationships between pH and epilithic lichens on lateritic substrata, light-induced seasonal variations of the ecophysiology of *Parmelia sulcata*, and the effects of high UV-B radiations on *Cladonia arbuscula* ssp. *mitis*.

The second day dealt with "Physiological mechanisms of metal accumulation in terrestrial cryptogams" with contributions involving not only lichens, but also arbuscular mycorrhizal fungi in the remediation of soils polluted with heavy metals, and the use of bryophytes as biomonitors of air pollution. Lichens were the subject of three contributions: biomonitoring of metal pollution in the Negev desert, Israel, with the epilithic lichen *Ramalina maciformis*, bioaccumulation of trace metals in different species of *Parmelia*, and accumulation of radionuclides in *Stereocaulon vesuvianum* as a consequence of the Chernobyl accident. In the afternoon, an interesting poster session followed. The last day was dedicated to a field excursion in the Euganean hills.

After the 2002 meeting in Padova, the Italian Lichen Society has a new Council: President: Mauro Tretiach (Trieste), Secretary: Stefano Loppi (Siena), Members: Paolo Giordani (Genova), Juri Nascimbene (Belluno), Sonia Ravera (Roma) (<http://dbiodbs.univ.trieste.it/sli/org.html>).

Stefano Loppi, Siena

The **Japanese Lichen Society** (LSJ), established in 1972, celebrated its 30th anniversary on 7–8th September, 2002. This anniversary meeting was cosponsored by LSJ and

National Science Museum, Tokyo, and the 47 participants from Hokkaido to Kyushu gathered at the foot of Mt. Fuji.

On September 7, the program started with an introduction for beginners, guided by experts of LSJ, and an excursion to "Aokigahara", the deep forest at the foot of Mt. Fuji. The vegetation there is dominated by *Pinus densiflora*, *Tsuga diversifolia*, and *Ilex pedunculosa*. Due to low light, parts of the forest are poor in lichens, but we could observe many lichens on bark and rocks in exposed rocky places of the forest.

After the excursion, participants went to the "Shirakaba-sou" and "Fuji-san" which are Japanese style hotels located near the Lake Sai-ko. The Shirakaba-sou Hotel may be familiar to some foreign lichenologists who have visited Mt. Fuji under the guidance of Dr. H. Kashiwadani. At the Shirakaba-sou, a general meeting of LSJ was held for LSJ members. After that, all participants had a barbecue party, which also included slide shows by seven LSJ members.



Participants at the 30th anniversary meeting of the Japanese Lichen Society

On September 8, we had three programs including the identification of lichens and two scientific lectures. The public hall changed into a good lichen laboratory, because some LSJ members brought microscopes, which was a good opportunity for beginners to learn more about lichens. The first scientific lecture was entitled "Lichen dyes" by Prof. Yuko Teramura. She brought and showed various beautiful lichen dyed cloths, and gave beautiful purple-red colored wool dyed by *Rimelia clavulifera* or *Parmotrema tinctorum* to the all participants as a souvenir. The second scientific lecture was the memorial lecture of this 30th anniversary meeting of LSJ. "Taxonomy and phylogeography of the genus *Parmelia* (s. lat)" by Dr. Syo Kurokawa. The genus *Parmelia* (s. lat.) had been divided into several taxonomic groups based mainly on his idea. Many of these groups are treated

at the genus level today. He presented his ideas about the genus especially emphasising the phytogeographical background. The Japanese lichenologists are really thankful to his great achievements and guidance in lichenology. As a symbol of our gratitude, we presented a memorial paper-board with our messages to Dr. Kurokawa.

In commemoration of 30th anniversary of LSJ, original goods of LSJ, such as Japanese tea cup, clock, bags, etc., were prepared and sold. All participants spent fruitful and enjoyable days with smiles of satisfaction. The photos of this meeting will also appear on the web page of LSJ. The LSJ web page has been posted to the following URL (<http://home.hiroshima-u.ac.jp/lichen/>).

Yoshihito Ohmura, Tsukuba

The **Japanese Society for Lichenology (JSL)** had a first annual meeting at Kobe Pharmaceutical University on July 27-28. About 40 members attended this meeting, which was entitled "Prospective of lichenology in the 21st century" and included 16 oral presentations. The titles and abstracts will be published in the 2nd issue of our journal "Lichenology". Y. Yamamoto ("Experimental lichenology in the 21st century"), H. Harada ("Studies on Verrucariaceae"), and H. T. Lumbsch ("Molecular data shake the Pertusariaceae tree into order") presented symposium lectures. We also held a first excursion at Mt. Nyugasa, Central Japan on Oct. 5-6, 2002. About 20 members attended it and enjoyed a lichen paradise at 1500 to 2000 m elevations, including about 5 m long thalli of *Usnea longissima* forming curtains which hung from branches of *Larix leptolepis*.

We want to invite foreign lichenologists to become members of JSL. Members of our society can submit manuscripts to our journal for consideration and receive a complementary copy of our journal with membership fee (20 USD). We hope you help our new society in any way and encourage the members of the JSL to further development of Japanese lichenology.

Yoshikazu Yamamoto, Akita

Lichenology at The Natural History Museum, London

This was a busy year for the lichen herbarium, in terms of projects worked on and visitors received. Anna Guttova from Bratislava, Slovakia, was here for two weeks in September on a Royal Society Grant (<http://www.royalsoc.ac.uk>), studying difficult *Leptogium*. Jennifer Bannister from Dunedin, New Zealand, was here for four days in July to check on some *Ramalina*. In October, Yury Kotlov from St Petersburg, Russia, visited the NHM for two weeks on a BLS Overseas Member's Fund (<http://www.thebbs.org.uk/overse.htm>) to work on Catillariaceae and later that month Grazina Adamonyte from Vilnius, Lithuania, for six weeks on Sys-resource funding (<http://www.nhm.ac.uk/science/rco/sysresource/>) to work on myxomycetes. Irina Mikhailova from Ekaterinburg, Russia, arrived in November and will be here for 6 weeks on a Royal Society grant to continue her research on heavy metals in lichens together with William Purvis and staff in the Department of Mineralogy at the NHM. In November we also had a brief visit from Jarle W. Bjerke from Tromsø, Norway, who is working on *Menegazzia* for his PhD research.

At present there are two lichenological PhD projects co-supervised by William Purvis. Anna Crewe works on *Acarospora* with Mats Wedin in Umeå, Sweden, and Linda Davies (co-ordinator of the APRIL project in London) works on the status of lichens in the

London region in relation to changing levels of atmospheric pollutants and is co-supervised by Nigel Bell (Imperial College).

Pollution research is still high on the agenda in both temperate and tropical regions, including assessing deposition of pollutants in transplanted lichens in Russia (William Purvis & Irina Mikhailova), continued monitoring of lichens at Burnham beeches (William Purvis, assisted in the field by Simone Louwhoff) and a project with Imperial college London to combine several aspects of pollution monitoring in Britain including changing lichen flora of London, lichen transplants in London and effects of ammonia levels from intensive livestock rearing (William Purvis, Linda Davies, Feliciano Cirimele, Peter James and Pat Wolseley).

The NHM has been involved with a large EU funded project called BIOASSESS, looking at factors affecting biodiversity in six different land use types in seven countries, using protocols developed for each group of organisms investigated. The lichen protocol was devised by Christoph Scheidegger and is outlined in the Lichen Monitoring book. In Britain this project was based in Scotland and included Caledonian pine forest, plantation, arable and pasture farmland.

Tropical studies continue in several areas. Simone continues her research interest in Pacific island and Southern Hemisphere Parmeliaceae with Jack Elix. The *Catalogue of the lichens of Thailand* by Pat Wolseley, Begonia Aguirre-Hudson and Patrick McCarthy was published in the NHM Bulletin. Wanaruk Saipunkaew has returned to Thailand after her Royal Society fellowship at the NHM in 2001 and now has funding from Thailand to develop biomonitoring using lichens around the Chiang Mai region in Northern Thailand. We hope that she will be able to return here to work on the taxonomy of some of the more difficult taxa. Pat and Simone are continuing to work on papers for this project, together with Wanaruk.

In October Pat and Wanaruk participated in the Kunming Field meeting to China where Pat presented results of the work on Thai Parmeliaceae.

Fieldwork was also carried out in the Blue Mountains, Australia by Simone, who attended the 15th Australasian Lichenological Meeting in the Blue Mountains, Sydney.

Peter James and Clifford Smith are both involved with the identification of collections made in the Azores as well as with co-ordinating the new edition of The Lichen Flora of Great Britain and Ireland. Amanda Waterfield presented a poster on the Listers and myxomycete collections at the NHM, at the Myxomycete Congress in Belgium in August. Simone is on maternity leave for 6 months and Hannah McPherson, from the Royal Botanic Gardens, Sydney, will be the lichen contact person at the NHM from January to July 2003.

Simone Louwhoff & Pat Wolseley, London

The Seventh Mycological Congress (IMC 7) from a lichenological perspective

The IMC 7 started for me a couple of days before the actual meeting with the pre-congress excursion to the Hardangervidda, perfectly organized by Stefan Ekman (Bergen) and Gry Alfredsen (Oslo). We were housed at the Research Centre in Finse, which is situated above the timberline at 1220 m a.s.l., and offered a magnificent view of the Hardanger glacier. The vegetation we saw during the excursion included alpine meadows, rocky outcrops of calcareous schist or acid granite/gneiss, willow thickets, mires, snowbeds, ridges, and glacier forefronts. Some of us were surprised by the sudden weather changes, e.g. when temperature dropped and when it spontaneously started to rain very

cold and rather horizontally. In general, we had good luck and could spend long days in the field. We successfully searched for rare lichens reported by earlier visitors but were also able to make new findings, notably *Pachyascus lapponicus*, a minute epiphyte of the moss *Andreaea*.

After the return to Oslo, we followed an impressive opening ceremony – acoustically underpinned by progressive Norwegian music – which was followed by a reception in the City Hall. Apparently the participants saved their hunger for this event, because within a few minutes the whole buffet had disappeared. The following days were intense as usual: Trying to catch up with friends and colleagues, and to visit all of the interesting sessions. There were not too many lichenologists, and this might be due to the high prices of the meeting and the limited possibilities for more traditional lichenological presentations. Two sessions were entirely devoted to lichens: “Linking structure and physiology in lichens” organized by Allan Green and Burkhard Schroeter, and “Molecular data versus traditional classifications of lichens” by Stefan Ekman and myself. A few of lichenological contributions were presented under „Non-mycorrhizal interactions between fungi and photoautotrophs“, a session arranged by S. Zoller and J. Miadlikowska, and “Ascomycete taxonomy” by O. Eriksson was partly populated by lichenologists. Further lichenological contributions were dispersed in other sessions, e.g. the following talks: “Population genetics and dispersal biology of endangered lichen species” (C. Scheidegger), “Biodiversity of lichens” (T. Feuerer), “Major fungal lineages are derived from lichen symbiotic ancestors” (F. Lutzoni), “Fungi and lichen: microbial ecology in Antarctic rock desert” (C. Ascaso), “Foliicolous lichens: Evolution and ecology of an unusual growth habit” (R. Lücking), “Phylogeography of the widely disjunct lichen *Cavernularia hultenii*” (C. Printzen). All abstracts are still available at <http://www.uio.no/conferences/imc7/>.

During the congress, an IAL dinner was organized and held in the Botanical Garden of Oslo in front of the Manor's house. This would not have been possible without the help of Siri Rui and Einar Timdal who are both acknowledged here. More than 90 colleagues attended the dinner and enjoyed the cloudless blue sky, the warm temperatures and the setting. During the dinner, the awards for the Mason Hale award and the Acharius medal were announced (see this issue under Association news). See images of the event by Einar Timdal at: <http://www.nhm.uio.no/botanisk/lav/Photos/index.htm>

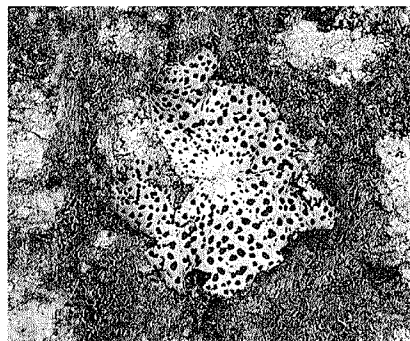
It was a pity to leave Norway again too early. I would have liked to participate at the post congress excursion to coastal Central Norway, which was organized by Håkon Holien and Tor Tønsberg (Bergen).

Martin Grube, Graz

The IAL Kunming Field Meeting, October 2002

The IAL Kunming (China) field meeting, 15–30 October, 2002, brought together participants from almost a dozen countries. Organizers Professor Liu Pei-guei and Wang Li-song (Kunming Institute of Botany, Yunnan, P. R. China), Professor Wei Jiang-chun (Chinese Academy of Sciences, Beijing, P. R. China), and Professor Bruce McCune (Oregon State University, USA), provided us an outstanding lichenological and cultural experience. We all greatly appreciate the immense planning effort by the organizers, especially excursion leader Wang Li-song. Many thanks go to the host institution Kunming Institute of Botany for vehicles and drivers. Einar Timdal is hosting a web site that follows up the field meeting; trip sites and participants, lists of species, as well as photographs are posted there (<http://www.nhm.uio.no/botanisk/lav/Yunnan/>).

We started with welcoming speeches by Liu, McCune, and Wei, an introduction to



Two endemics: *Umbilicaria yunnanensis* on trunk of *Pinus yunnanensis* at 2750m elevation on Yu Long Shan (Jade Dragon Snow Mountain) west of Lijiang city, Yunnan, China.

patience and good humor. We thank cheerful, tireless, incredibly efficient Wang Li-song for a tremendous job leading the field trip. Consider the logistics of herding 38 participants to 30 restaurants, eight hotels, on and off the vehicles 83 times, in and out of the woods 18 times, without losing anyone or their specimens!

We alternated lichenizing in the field with sampling the many varieties of cuisine Yunnan offers. We must have tasted 300 different dishes during our stay; the food was excellent, whether in cities or small towns. The westerners became fairly proficient after 2 weeks with chopsticks, though some of us still had trouble with the long noodles! We learned a bit about the culture of some large ethnic minorities – a program on the history of Naxi (pronounced *Na-shi*) music, visits to local markets featuring ethnic foods and goods, meals at ethnic restaurants. We experienced the friendliness and industriousness of the Chinese people as we visited temples and favourite local tourist sites (such as the Stone Forest), and noted the footprints of terracing, grazing, firewood collection, and logging during our tour. We had much opportunity to observe (and discuss) agricultural and building practices. Our trip coincided with the rice harvest; we observed many different stages of harvest as we changed elevation on the trip, and even helped thresh rice by driving over

Yunnan vegetation by Guan Kai-yun, Director of the Kunming Institute of Botany, talks about lichens in China and Eastern Asia by Wei, Liu, Lai, McCune, Sapunkaew, Aptroot, Søchting, Sparrius, Wolseley, Sipman, Tchabanenko, Crespo, and Scholz, and a preview of the field excursion by Wang. We ended the first day with a splendid welcoming banquet.

The field excursion focused on upper elevation habitats (1900m and above) in the topographically diverse and botanically species-rich northwestern part of Yunnan Province in southwest China. We travelled more than 2300 km on many back roads in a small bus, a van, a 4wd, and a luggage truck, with only two minor vehicle problems. Close quarters on the vehicles fostered sharing of expertise, opinions, songs, snacks, and diseases (a cold), with universal

Wang Li-song Herds Lichenologists:

Wang says "Ten minutes."

Lichenologists find trees, rocks
Half hour: "We go NOW!"

"Rest stop: ten minutes."
Tunnel the air; bridge through earth.
An hour: a W.C!

Ten minutes 'til stop:
Be back at bus: four o'clock.
"I see you later."

"Return in three hours."
We scatter on wooded slopes.
Four hours: bags are full.

By field trip participants.

dried stalks laid on smaller roads.

We were displaced from high-elevation (3700m) lodging in the Lao Juen Shan forest reserve by a delegation of IUCN officials. We thought the presence of several IUCN SSC committee members among our participants should have given us some bargaining power! We did get to see representatives of the Bai and Naxi cultural minorities practice their welcoming songs and dances. Our change in lodging to the town at the foot of the mountain helped those who suffered from altitude sickness the first few days.

In the Lijiang – Dali region, we ate dishes of *Lobaria* and *Ramalina* prepared in much the same ways as described by Wang *et al.* (2001, Bryologist 104: 345–349), after seeing them in the field and in markets. We noticed that packages of "*Lobaria*" now also include large *Sticta* thalli, suggesting continued increase in the market for lichens and pressure on the wild populations (Wang *et al.* 2001).

The forest reserves on the upper slopes of mountains are impressive islands of biodiversity in a sea of intensive agriculture in the valleys and lower slopes, with widespread grazing and/or woodcutting on lower to middle slopes forming broad buffer zones. We collected in some primary forest and much secondary forest (with long walks to find remnant larger trees). Lichen diversity was relatively high in many reserves, even in some of the secondary forest remnants, though crustose species richness seemed not as high as anticipated at some sites.

The montane flora was a fascinating blend of the familiar (many common temperate forest plant genera and lichen species) and the novel (new species and unfamiliar mixes of both plant and lichen species), often in dramatic situations that looked straight out of a Chinese painting. Most upper elevation forested sites had a rich mixture of conifer and broadleaf, evergreen and deciduous plants. In these forests large leafy lichens were abundant, from conspicuous cyanolichens including species of *Lobaria*, *Sticta*, *Nephroma*, *Leptogium* and *Pannaria* (most of them more abundant in older forests), to large leafy Parmeliaceae. The latter included 12 species of cetrarioid lichens, most of those known to be in China, with beautiful examples of *Tuckermannopsis* and *Tuckneraria*. The cetrarioid species and a high diversity of *Hypogymnia* were especially abundant in higher montane areas, while *Hypotrachyna*, *Myelochroa* and *Parmelia* species were more abundant in lower montane areas on broadleaf trees, scrubby sclerophyll vegetation and on rocks. Parmelioid species included a combination of those in widely distributed temperate and subtropical genera and at lower elevations those with a more tropical distribution. *Heterodermia* was the most conspicuous genus of the Physciaceae at higher altitudes, forming very beautiful fertile plates on trunks and branches. At lower elevations species of *Dirinaria* and *Pyxine* were more conspicuous, especially around agricultural and urban areas. A species of *Candelaria* was abundant around farmsteads, though there was no sign of *Xanthoria* species in agricultural areas. We found relatively few representatives of tropical families among crustose lichens in most places, except near the border with Burma, where tropical climates and vegetation extended north along the Salween River. There we found several species of typically foliicolous lichens growing on rock in young secondary forest, finding refuge there until trees get large and old enough again to provide suitable habitat.

We observed healthy populations of several species endemic to this region of China, including the lichen species *Hypogymnia yunnanensis*, *Nephromopsis yunnanensis*, and *Umbilicaria yunnanensis* (see photo), and the conifers *Pinus yunnanensis* and *Keteleeria* sp.

We found specimens of 2 *Menegazzia* (Aptroot) and 1 *Lobaria* (Tchabanenko) species with descriptions currently in press. Several undescribed species were noted in the field: 1 *Caloplaca* (Wetmore), 2–3 *Peltigera* (Miadlikovska), 1 *Hypogymnia* (McCune), 1

Everniastrum (Trest), 1 *Platismatia* (Lai), possibly 1 *Cetrariopsis* (Lai), and probably several new Parmeliaceae (Crespo, Wolseley). Look for them in the literature in the next few years, along with more new species that participants expect to find when we study specimens in our laboratories.

After our return to Kunming, we packed up our specimens for shipping in record time, leaving ample time to work in the lichen herbarium, visit nearby city parks, and even go shopping. We had a final banquet (again splendid) in which we thanked our hosts and met more of the staff of the Kunming Institute of Botany. In a collaborative effort of many participants, 15–20 herbarium drawers of unknown specimens were sorted to genus or species, an immediate IAL contribution to improving the Institute's lichen herbarium.

In summary, the field meeting was a great success – we experienced Yunnan's great topographic and cultural diversity and collected a wide diversity of lichen species, even without visiting the tropical parts of Yunnan. Identified duplicates from participants will return to enrich the lichen herbarium of the Kunming Institute of Botany. The lichen collections and contacts between lichenologists made on this trip will undoubtedly result in multiple future collaborations on the lichens of China.

Susan Will-Wolf, Madison, and Pat Wolseley, London

Arsène collection

An important Arsène historical collection from New Mexico was re-discovered recently by Dave Johnson at the College of Santa Fe in 1999. During an ABLS (American Bryological & Lichenological Society) field trip around Santa Fe in 2001, participants were invited to inspect the collections. It was evident that these were authentic collections made by Frère G. Arsène Brouard from the Christian Brotherhood in and around Santa Fe in the 1930s. Brother Arsène sent most of his lichen collections to Maurice Bouly de Lesdain, and many new taxa originally described by Bouly de Lesdain from New Mexico were based on his material. Bouly de Lesdain retained specimens sent to him in his private herbarium in Dunkerque, France, and sent back to Brother Arsène letters detailing his determinations. Brother Arsène maintained a detailed catalogue of these determinations, a vital document also discovered by Dave Johnson. Unfortunately, Bouly de Lesdain's collections were destroyed in World War II, and much of the important "type" material of these new taxa was lost.

Many specimens of these re-discovered collections were mentioned in the second major paper on New Mexico lichens by Bouly de Lesdain (1942), and some may represent isotypes or isosyntypes that may be suitable for selection as lectotypes.

Most of these specimens are from the later period in Brother Arsène's life. Based on specimen collection dates, they do not represent duplicates of collections upon which Bouly de Lesdain based his first New Mexico lichen paper in 1932. The Christian Brothers of the College of Santa Fe, New Mexico, kindly donated this historical Frère Arsène Brouard lichen collection to ASU in 2002. According to our agreement duplicates of the original collections will also be deposited in Santa Fe and OMA (University of Nebraska at Omaha).

Specimens from the collection have been curated with the help of Robert S. Egan, Dave Johnson, Thomas H. Nash III, Bruce Ryan and F. Bungartz. Robert S. Egan (OMA) and Dave Johnson (Santa Fe) have catalogued the collection and Corinna Gries imported the data into the ASU database available at <http://ces.asu.edu/ASUlichens/index.html>.

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Tom Nash, Tempe

REVIEWS

Lichens and global warming

Lichens are well known as indicators of pollutant levels, and lichen monitoring has become a common part of air quality evaluations. Also, however, many lichens have a precisely defined climatological tolerance, often a narrow amplitude.

It can be safely predicted that global warming would have an influence on lichen floras, and some base-line studies have recently been set up to specifically study this (see Insarov & Schroeter 2002 for an overview).

The study of lichen colonization in front of retreating glaciers is probably the oldest way in which the response of lichens to climate change is studied, although indirectly. Glacier retreat has reached dramatic dimensions in the Alps nowadays, but there are also less conspicuous effects of climatic changes, which are indicated by the lichen flora.

In some parts of Europe, the use of lichens to monitor environmental changes has been facilitated by the long-term attention paid to these organisms, so that a record of accurate data extends back for some decades. In the Netherlands a detailed analysis was carried out of the changes in epiphytic lichen composition that have occurred in the province of Utrecht in the central part of the country, which has been monitored intensively at five-year intervals since 1979. At the same time the trend of all epiphytic and terricolous lichens in the country as a whole was determined. Major changes are linked to changes in pollutant levels, and appear significant for all separate five-year intervals. But recently other major changes appear to be independent of pollution: warm-temperate species like *Candelaria concolor*, *Lecidella flavosorediata*, *Punctelia borreri* and *Flavoparmelia soredians* show a strong increase which cannot be explained only by changed pollution levels. On the other hand, many species with a mainly boreo-montane/arctic-alpine distribution decreased or disappeared. These data strongly suggest that global warming has affected the lichen populations (Van Herk *et al.* 2002). When the Ellenberg-values (see Wirth 1991) are attributed to the various species, the regression coefficients with both temperature and nutrient demand over the last five-year period are highly significant, while no significant correlation is attributable any more to toxitolerance (i.e. SO₂).

A two-day indoor workshops aimed at comparing the nature and content of the British and Dutch lichen mapping programmes was held in June 2002 to see whether similar conclusions could be reached with regard to the possible effects of global warming on the British lichen flora. The British programme naturally has a larger area to cover and is mainly concerned with the generation of biogeographic data, although inventories are generated for site analyses, Red Data Books, etc. Results were not as clear as we expected, probably because it is mainly a mapping programme devoted to fill empty squares, rather

than a monitoring programme in which it is aimed to reconfirm species' records within relatively short time-spans.

It would be of interest to compare experiences in other countries, exchange the pros and cons, and possibly to join efforts on a European or even world-wide scale. Care is, however, necessary when changes of separate species are interpreted only in terms of temperature, and the complex ecology of a species is ignored at the same time. We prefer to consider changes of species compositions as a whole in connection with other ecological changes. We would like to hear about experiences in other regions and discuss methods and results.

André Aptroot, Utrecht & Kok van Herk, Soest

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From phytogeography to phylogeography

Some years ago, a forum discussion via the IAL listserver, lichens-I, was devoted to "lichens as a special case in biogeographical analysis". The first question at the end of the introductory text (Barreno 1998) was how were the distributional patterns of lichens achieved, followed by a series of more specific questions to be addressed in the future. Barrenos introduction was discussed by subsequent contributions. Notably, Mauro Tretiach argued that molecular studies could find polymorphisms in widely distant populations and challenged the idea of long-distance dispersal by the evidence that not all distant areas with similar ecological conditions are colonized by a similar lichen flora.

What has been achieved in this field since this discussion? Of course, there are numerous floristic and biogeographic studies, which added to an understanding of the geographic distribution of lichen taxa, and at this point I want to clarify that the importance of such studies must not be underestimated. They form the knowledge base that serves for the development of hypotheses. Nevertheless I want to concentrate here on recent molecular evidence in this field.

In a study of 17 specimens of *Roccellina capensis* (Arthoniales) by Lohtander *et al.* (1998), the question was addressed whether fertile and sterile dispersal strategies can be assigned to a pair of taxa. The authors found some variation in the ITS genes within the species, but the specimens grouped according to geographic distribution rather than dispersal strategy. Clearly, this species does not represent a "species pair" as understood originally, but the authors showed that polymorphisms within species show geographic pattern. In another earlier paper, polymorphism within species was used to compare transatlantic specimens of cetrarioid lichens (Thell & Miao 1999). The variation of the ITS gene was generally not in conflict with species delimitation (except for the *Cetraria islandica-ericetorum* complex), but the number of samples for each species was too small to detect further geographic patterns.

A technically different approach was pursued by Printzen *et al.* (1999) to study the genetic variation in the corticolous species *Biatora helvola*. These authors used ascomatal sections directly for the amplifications and RAPD markers instead of a locus characterized by sequence in their analysis. As the distribution of *Biatora helvola* is strongly linked to that of the preferred phorophyte *Picea abies* in Europe, the authors investigated whether the lichen survived in glacial refugia of spruce and reinvasion of Europe after the last glaciation period. The results indicated that samples from different geographic origin are distinct. Although the authors admit that only a limited number of specimens was used, their initial hypothesis was supported. Genetic differences in *B. helvola* agreed with the glacial disjunction of spruce. Moreover, the molecular results of this study did not find evidence for long distance dispersal in this species, which is morphologically indistinguishable across its geographic range.

More recently, lichenologists started to use DNA sequence information from more than one genetic locus to study phylogeographic questions. Crespo *et al.* (2002) used ITS and β -tubulin sequences (which were produced from a subset of samples) to detect two subgroups within the cosmopolitan species *Parmelia saxatilis*. An Atlantic subpopulation was distinguished from a Mediterranean subpopulation (the latter also lacked an intron). The Atlantic subpopulation is wide-ranging and includes also Arctic and Antarctic samples.

Genetic structure as represented by DNA sequences from multiple gene loci was previously used in a study on the species pair *Letharia vulpina-columbiana*. Kroken & Taylor (2001) found that this complex is composed of six phylogenetic species, only one of these is also found in Europe and this species constitutes *L. vulpina* in its strict sense. Being relatively abundant in coastal ranges of Western North America, and locally in the Alps, this species is rare in Northern Europe. Eight genetic loci were used in a study of *Letharia vulpina sensu stricto* (Högborg *et al.* 2002). The authors found evidence for recombination in North American samples, where ascomata seem to be not as rare as in Europe. On the other hand, European populations showed almost no variation, and dispersal appears to be strictly clonal. It was suggested that limited long distance dispersal was a reason for a genetic bottleneck in European populations.

Another member of the Parmeliaceae that shows a comparable disjunction is *Cavernularia hultenii*, although the ecology is different from that of *Letharia*. *Cavernularia hultenii* is usually sterile and found in north-western North America, Newfoundland and north-western Europe. Printzen & Ekman (2002) sampled this species across its distributional range and used variable regions of the nuclear ribosomal DNA cluster (ITS and IGS), assuming that recombination is uncommon. In contrast to all other studies presented here, Printzen & Ekman used a network approach instead of traditional tree inference to account for the fact that internal nodes are extant. Intraspecific variation was also substantial in *Cavernularia*, and similar to the situation in *Letharia*, the Pacific Northwest harbors a high number of haplotypes, whereas the number is lower in Newfoundland and Europe. The analysis of haplotype networks suggested that diaspore dispersal between the three geographic areas analyzed is unlikely, rather dispersal is limited even on a small geographic scale, as indicated by the patterns of rare alleles in Pacific North West. Printzen & Ekman conclude that widespread and common haplotypes, which appeared as interior nodes in their network analysis, represent ancient alleles. *Cavernularia* could have populated its extant areas from a pre-Pleistocene continuous range.

These present studies show that genetic variation within species is highly informative and can be used to study the principles and processes of its geographical distribution. The

term phylogeography has been coined in this context (Avice et al. 1987, Avice 2000). Using appropriate analytical methods, the geographical history of lichen populations can now be investigated to great detail, if carefully designed sampling covers the total genetic diversity in the studied region. Currently several working groups address phylogeographic questions, and in the near future we will hopefully get further insight into the complexities of the geographic distribution of lichens.

The Editor

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LICHENOLOGY ON-LINE

Søchting, U. & Alstrup, V. 2002: Danish Lichen Checklist. Version 1 is now accessible on the Internet at: <http://www.bot.ku.dk/groups/mycology/dklaver/index.asp>

Ulrik Søchting, Copenhagen

Ernie Brodo, Ted Esslinger, and I recently finished our yearly update of "*Identifying North American Lichens: A Guide to the Literature*". As previously announced, the URL has changed from a year ago. It is now available at: <http://www.huh.harvard.edu/collections/lichens/guide/index.html>

Philip May

Corrections and updates to "*Checklist of Lichens of Great Britain and Ireland*" (2002), published in May this year by Brian Coppins, is now on the BLS website as is the updated "*British Isles List of Lichens and Lichenicolous Fungi with BLS numbers*" (also available as .csv and .xls files). See: <http://users.argonet.co.uk/users/jmgray/>

Jeremy Gray

The number of identification keys available on the internet is growing slowly but steadily. The survey at <http://www.bgbm.org/Sipman/keys/default.htm> contains now 24 items, 6 general keys and 18 for taxonomic groups, arranged alphabetically. A geographical guide is available via the Checklist website of Dr. Feuerer. The latest addition is a key to the species of the genus *Stereocaulon* in the neotropics, at the address <http://www.bgbm.org/sipman/keys/Neostereo.htm>.

Harrie Sipman, Berlin

Lichen images on the web

More and more images of lichens are now found on the World Wide Web. They are of aesthetic value sometimes but primarily useful for comparisons and for people, who want to confirm their species determinations. Particular images can either be found using search engines which retrieve the image files directly (e.g. Google image search), or otherwise in databases, which manage galleries of images. A Web-site presenting a list of species for which images are available is found at <http://users.erols.com/uebe/species.htm>. The links given for the species are stored separately (<http://users.erols.com/uebe/links.htm>). The following site presents a photographic atlas of lichens relevant in air pollution studies, together with some morphological information: http://www2.ac-lille.fr/lichen/Page_43.htm. High quality drawings of various lichens are found under: <http://www.fs.fed.us/r6/aq/lichen/drawings.htm>. Probably the most complete image database is part of the ITALIC system maintained at the University of Trieste: http://dbiodbs.univ.trieste.it/web/lich/arch_icon. The images are presented as thumbnails, and can be clicked to retrieve a higher magnification. A large number of pictures of remarkably quality are stored at Einar Timdal's web sites: http://www.nhm.uio.no/botanisk/lav/Photo_Gallery/. Photographs by the Sharnoffs are presented at: <http://www.lichen.com/portraits.html>. About 215 species, together with a

brief description are compiled by U. Kirschbaum: <http://kmubserv.tg.fh-giessen.de/pm/kirschbaum/>. Further pages with numerous images are found here: <http://paulhofmann.at/flechtaauswahl.html>, <http://www.webspinners.com/lichens/>. As a curiosity, some artwork with lichens can even be purchased on-line: <http://www.larrymichael.com/images/lichen/lichengallery.html>.

Apart from these site, which primarily present macro photographs of lichens in the field, high resolution images of historical and type collections on the web could be particularly valuable (see the lichen types of Acharius and Swartz at <http://linnaeus.nrm.se/botany/>), especially if these sites contains also anatomical information. In some cases this could prevent sensitive type material from being used up with time. The compilation presented here is perhaps not complete, and new sites are popping up continuously as shown by the following contributions, which was sent to the Editor while this paragraph was written.

The Editor

A database for photographs of lichens is available at <http://www.botany.hawaii.edu/lichen/photos>. The database operates on the same principle as the IAL database of names, addresses, telephone numbers, websites, etc., of lichenologists. Members are encouraged to add their photographs to the database.

Images can be requested for genera, species, country, etc. Full names are not necessary. Searches for listing of genera beginning with 'T' for example will list all photographs for any genus beginning with T. The more detailed the information request the more specific the answer will be. Putting the mouse pointer over any listed name will generate a pop-up window with details about that particular image. The database cautions the user that the image should not be used elsewhere without the permission of the owner (contact details are provided in the pop-up window).

Clifford Smith, Honolulu

The genus *Cladonia* in the Netherlands – Pictures of the all species from this genus occurring in the Netherlands are shown on the website <http://www.biodiv.nl/lichens/cladonia.asp>. Also a key (in Dutch) is provided. Eventually the Dutch Bryological + Lichenological Society (BLWG) will publish them in a new identification guide.

Laurens Sparrius, Gouda

Back issues of ILN

The following back issues of ILN are still available: 9(1), 9(2), 10(1), 10(2), 11(1), 11(2), 12(1), 12(2), 13(1), 13(2), 14(1), 14(2), 15(1), 15(2), 16(1), 16(2), 17(1), 20(1) and further issues. Photocopies are available of: vol. 1(1), 1(2+supp.), 1(3), 2(1), 3(2), 6(2), 7(1–2), 8(1–2). Two indexes are also available: Index to vol. 1–8, Index to vol. 9–13. – According to a resolution of the IAL Executive Council, published in ILN 16(1), April 1983, the following charges will be levied for back issues of ILN: Vol. 1: 0.25 USD per number (3 per volume); vol. 2–8: 0.50 USD per number (2 per volume); vol. 9–13: 1.00 USD per number (2 per volume); vol. 14–17: 1.50 USD per number (2 per volume). Back issues from vol. 20–29 are available for 1.00 USD per number (3 per volume). The Indexes are free. New members will receive free only copies of the numbers constituting the volume issued for the calendar year in which they join IAL. Orders for vols. 1–29 to be sent to H. Sipman, Bot. Garten & Bot. Museum, Königin-Luise-Straße 6–8, D-14191 Berlin, Germany, fax: +49) 30-84172949, e-mail: hsipman@zedat.fu-berlin.de. For later issues contact the Editor.

Lichens-I is the official mailing list of IAL. You can subscribe by sending an e-mail to listproc@hawaii.edu with the message "SUBSCRIBE LICHENS-L YourFirstName YourLastName".

The cover-page illustration

The cover was reproduced from Ulf Arup's thesis with his kind permission. The illustrations show several maritime *Caloplaca* species. The large thallus to the lower left shows *Caloplaca verruculifera*. The small ascomata to the left above *C. verruculifera* are from *C. inconspicua*. Right of these is a small fragment of *C. luteominia* and the larger, lobate, and apotheciate thallus of *C. brattiae*. Underneath, and at the lower right are thalli of *C. rosei*, which partly border the right margin of *C. marina*. The uppermost row shows, from the left to the right, the areolate thallus of *C. litoricola*, a small lobate thallus of *C. brattiae*, the loose thallus of *C. bolacina* and to the very upper right, a thallus of *C. luteominia*.

List of Societies

Australasia: Australasian Association for Lichenology. Info: W.M. Malcolm, Box 320, Nelson, New Zealand. Phone & fax: (+64) 3-545-1660, e-mail: nancym@clear.net.nz

Brazil: Grupo Brasileiro de Liqueólogos (GBL). Info: Marcelo P. Marcelli, Instituto de Botânica, Seção de Micologia e Liqueologia, Caixa Postal 4005, São Paulo – SP, Brazil 01061-970. Fax: (+55)-11-6191-2238, phone: (+55)-11-5584-6304 (inst.), 218-5209 (home), e-mail: mmarcelli@sti.com.br

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Finland: Lichen Section, Societas Mycologica Fennica. C/o: Botanical Museum (Lichenology), P.O. Box 47, FIN-00014 Univ. Helsinki, Finland. Info: Teuvo Ahti, phone: (+358)-9-7084782, fax: (+358)-9-7084830, e-mail: teuvo.ahiti@helsinki.fi

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Great Britain: The British Lichen Society (BLS). C/o: Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD, UK. Info: Pat Wolseley, phone: (+44)-20-7942-5617, fax: (+44)-20-7942-5529, e-mail: bls@nhm.ac.uk, web page: www.theBLS.org.uk

Italy: Società Lichenologica Italiana (SLI). C/o: Museo Regionale di Scienze Naturali di Torino, v. Giolitti, 36, I - 10125 Torino. Info: Giovanni Caniglia, Dipartimento di Biologia, V.le G. Colombo, 3, I-35121 Padova. Phone: (+39)-049-8276-239, fax: (+39)-8276-230, e-mail: caniglia@civ.bio.unipd.it, web page: www.lrcser.it/~sl

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North America, Northwest: Northwest Lichenologists (NWL). Info: Bruce McCune, 1840 NE Seavy Avenue, Corvallis, Oregon 97330 USA. E-mail: mccuneb@bcc.orst.edu, web page: www.nwlichens.org (To get on the e-mail list, contact Sherry Pittam: pittams@bcc.orst.edu)

North America, California: The California Lichen Society (CALS). P.O. Box 472, Fairfax, CA 94930, U.S.A. Info: Janet Doell, e-mail: aropoika@earthlink.net, web page: ucjeps.herb.berkeley.edu/rbmoe/cals.html

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Switzerland: Association Suisse de Bryologie et Lichénologie (BRYOLICH). Info: Silvia Stofer, WSL, Zuercherstrasse 111, CH-8093 Birmensdorf, e-mail: stofer@wsl.ch

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