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The opinions expressed in the Newsletter are not necessarily those held by the International
Association of Lichenology.

INTERNATIONAL ASSOCIATION OF LICHENOLOGY

The International Association of Lichenology (I.A.L.) promotes the study and conservation of lichens. It organizes symposia, field trips, and distributes a biannual newsletter. There is a listserver which 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 in or become members of I.A.L. are requested to send their subscription (\$20 for the biennium 1997-1998, \$40 through 2000) to the Treasurers.

The **International Lichenological Newsletter** is the official publication of I.A.L. 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) **Forum**: discussion of controversial scientific matters. It includes proposals of new themes for discussion (max. 1.5 page), and reactions to former proposals (max. 1 page). 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 15 May and 15 October 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 3 Symposium (Salzburg, Austria, 1996) are listed below, and will serve until 2000.

I.A.L. EXECUTIVE COUNCIL 1996-2000

President: Hans-Martin Jahns, Botanical Institute, Universitätsgasse 1, D - 40225 Düsseldorf, Germany.

Vice President: Dianne Fahselt, Dept. of Plant Sciences, University of Western Ontario, London, Ontario, N6A 5B7, Canada.

Secretary: Dagmar Triebel, Botanische Staatssammlung, Menzinger Strasse 67, D-80638 München, Germany.

Treasurer: Edit Farkas, Institute of Ecology and Botany, Hungarian Academy of Sciences, H-2163 Vácrátót, Hungary.

Deputy treasurer: François Lutzoni, Dept. of Biology, Indiana University, Jordan Hall 142, Bloomington, Indiana, USA.

Editor: Pier Luigi Nimis, Dipartimento di Biologia, Università di Trieste, Via Giorgieri 10, I-34127 Trieste, Italy.

Members-at-Large: Paula DePriest (Washington, USA), Gintaras Kantvilas (Hobart, Australia), Hiroyuki Kashiwadani (Tsukuba, Japan), Xavier Llimona (Barcelona, Spain), Bruce McCune (Corvallis, USA), Wendy Nelson (Wellington, New Zealand), Sieglinde Ott (Düsseldorf, Germany), Tiina Randlane (Tartu, Estonia), Leopoldo Sancho (Madrid, Spain), Gernot Vobis (Bariloche, Argentina), Dirk Wessels (Pietersburg, South Africa).

ASSOCIATION NEWS

IAL Council meeting (*The Linnean Society of London 10/1 1998*)

Present: H. M. Jahns, E. Farkas, X. Llimona, P.L. Nimis, T. Randlane, C. Smith, M. Wedin. - The President greeted the Council members, and the members of the Constitution Committee, that were present. The meeting discussed three main subjects: 1) *IAL in the international arena*. The meeting recognised that lichenology must have a strong voice in the international scene, and IAL is the only organisation which can take on this role. We (IAL) must ensure that lichenological interests are represented on the board of major mycological and botanical societies, and we must be well represented at the major international meetings and congresses, particularly in the planning stages. All Council Officers and members-at-large should be able to represent IAL at congresses and meetings. Otherwise, someone should be officially nominated to represent IAL at associate societies meetings and conferences. 2) *IAL financing*. It was clear to those meeting that we need to stop moving money around between countries every four years. Assistant treasurers (not policy making) should have local accounts for IAL. The IAL gets at present no interest on its bank accounts, this is clearly needed and future assistant treasurers should arrange these kinds of accounts. The need to be registered as a non-profit organisation was discussed. It was not clear if a registration in one country was recognised in other countries as well. 3) *IAL Constitution and Council*. The meeting discussed the possible development of IAL into a federation of local and regional affiliated societies. Members of these associated societies might automatically become members of the IAL and receive the Newsletter. The Newsletter would then be distributed by the local organisations. If we become a federation, members-at-large will be of more importance as they could be representatives of, and perhaps appointed by, local societies. It was acknowledged that if we want to make IAL a federation, we need dramatic changes in the constitution. A federation would lead to benefits for both the local societies and IAL. The local societies could arrange items for the IAL agenda; field meetings, local conferences and workshops. IAL would become the local societies' voice in the international arena. The meeting also recognised the need both for continuity and regular change in the Council. It should be possible to elect former Council Officers to other posts in Council, but re-election to the same office needs further discussion. The retiring President should probably become a member-at-large, to ensure continuity. In the Constitution, a statement on how the financial records are to be checked, must be included.

M. Wedin, London

Nominations for the Acharius medal and the Mason Hale award

All IAL members are kindly requested to send to the Secretary, D. Triebel, nominations for the Acharius medal and the Mason Hale award, which will be assigned on the occasion of the next IAL symposium in Barcelona.

Treasurer's Report

At the beginning of 1998 many members sent cheques or bank transfers to my address or to F. Lutzoni. Ca. US\$ 8,000 are on deposit. As the printing costs for the Newsletter are kindly covered by the Editor, we can continue sending the Newsletter also to members who have not yet paid. However, future costs (IAL4, Acharius Medals, etc.) should be considered. During the Council Meeting in London (January 1998) it was decided to

prolong the deadline for paying the membership fee until July 31, 1998. Several members have paid only until 1998, therefore a payment for 1999-2000 will also be necessary soon. Thanks to those who have already paid their dues. The following accounts are available: 1) Edit Farkas, Institute of Ecology and Botany, Hungarian Academy of Sciences, H-2163 Vácrátót, Hungary - cheques should be made payable to Hungarian Foreign Trade Bank, H-1051 Budapest, Szent István tér 11, Acc. no.: 501-00047-2100-4019 MTA TUDOMANY (the account holder is the Dept. International Relations, Hungarian Academy of Sciences), as remark please add "IAL membership fee 1997-98 (or 1997-2000)" - All fees should be paid in US dollars! You are kindly requested to add US\$ 5 for bank charges if you send a cheque, or, in case of bank transfer, the sender should pay all bank fees. 2) IAL dues can be also paid to: François Lutzoni, Deputy Treasurer, Center for Evolutionary and Environmental Biology, Dept. of Botany, The Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605, USA. In this case there is no bank service charge.

E. Farkas, Budapest

New members

Explanation of the fields: name, institute, street, town, country, fax, e-mail, telephone.

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NEWS

Reorganization of the lichen herbarium, Univ. of Göttingen (GOET)

The lichen herbarium of the University of Göttingen (GOET) is one of the largest in Germany, with about 50,000 specimens. The majority of the collections are from Europe, with emphasis on Central Europe, among these are valuable historical collections of Ehrhart, G. F. W. Meyer, Grisebach, Solms-Laubach, and others (see Wagenitz G., 1982: *Index Collectorum Principalium Herbarii Goettingensis*. Syst.-Geobot. Inst., Univ. Göttingen, 214 pp). The lichen herbarium was organized in the early 1950s by Otto L. Lange (Würzburg) - at that time a scientific assistant at the University of Göttingen - based on the classification system of Zahlbruckner. This system being now obsolete, a new arrangement of the collections was urgently needed. With financial support of the university and the city of Göttingen, a complete reorganization and automation of the lichen herbarium is being undertaken. Specimens are being repackaged and provided with new labels, and nomenclature is being updated using recent catalogues (e.g. Nimis, Santesson). Correct names of exotic collections are straightened out with the expert help of Dr. H. J. Sipman (Berlin). The specimens are being arranged alphabetically by genus and species in carton boxes, with cross references for important synonyms. Label information is being stored in a database, which shall be made available in the future on the Internet. The lichen herbarium of Göttingen also houses the tropical lichen holdings from the University of Utrecht (herbarium U), including some 10,000 specimens mostly from South America. These specimens were transferred to GOET on a long-term loan basis in 1995, following the appointment of S. R. Gradstein as Professor of Botany at the University of Göttingen. These materials shall eventually be duplicated, with one set remaining in GOET and the other one being returned to Utrecht. The correct herbarium citation for the specimens from Utrecht remains "U". Information: Dr. Thomas Pröschold, Institute of Plant Sciences, Department of Systematic Botany, University of Göttingen, Untere Karspüle 2, 37073 Göttingen, Germany, e-mail: sysbot@gwdg.de

S. R. Gradstein and Th. Pröschold, Göttingen

European lichenologists: a research visit to Helsinki?

The Department of Ecology and Systematics, University of Helsinki, and the European Commission have signed a contract concerning the 'Large-Scale-Facility status' of the Helsinki bryophyte/lichen herbaria and other relevant facilities. According to the contract, citizens of the EU-member countries (and those of Liechtenstein, Iceland, Norway, and Israel) can visit the Facility, free of charge and all costs of the visit covered by EU funds. The contract duration is 20 months, from 1st September 1998 to 30th April 2000. The minimum number of access offered to the visitors is 24 man-months. Within the Facility, access will be made to pertinent installations, depending on the type of research: Molecular Ecology and Systematics Laboratory, Ecological Laboratory, Division of Electron Microscopy, Botanical libraries (General, lichenological, bryological; others if necessary), Lichen and moss herbaria (*Herbarium Generale*; lichen herbaria of E. Acharius and W. Nylander; moss herbaria of S. O. Lindberg and V. F. Brotherus). The interested persons/research groups should send an application to: Prof. Timo Koponen, Department of Ecology and Systematics, P.O. Box 7, FIN-00014 University of Helsinki, Finland. The applications should consist of: 1) curriculum, 2) research plan (including the expected time and duration of visit), and 3) publication list of the applicant(s). The applications will be evaluated by our 'Users' Selection Panel', which consists of 5 members. The European Commission must approve the eligibility of the applicants' home institutions. The contract is intended to finance primarily short visits; for visits exceeding 2 months, a prior approval of the Commission is needed. Further information: Dr. J. Enroth (address as above), fax: (+358) 9 191 8656, e-mail: enroth@kmu.helsinki.fi

J. Enroth, Helsinki

News from the California Lichen Society

The California Lichen Society has a new mailing address and a new President following elections held last winter. The new address is: The California Lichen Society, 362 Scenic Avenue, Santa Rosa, CA 95407. The new President is Judy Robertson at the above address. Her e-mail address is: JKSRR@aol.com. The California Lichen Society has grown from nine members in January of 1994 to one hundred and fifty four in 1998. The membership represents seventeen states and four foreign countries. The Bulletin of the Society is published twice yearly and includes peer reviewed articles, keys to California lichens, lichen lists for areas visited on field trips, and reports on recent activities of the Society and its members. Dues are \$15 a year.

J. Doell, Pt. Richmond, CA

BioCISE - Call for co-operation

BioCISE (A Biological Collection Information Service in Europe - Resource Identification) is a multidisciplinary Concerted Action project funded by the European Commission (DG XII). Its aim is to identify and analyse databases of biological collection objects in Europe. The results of the survey will be made public on the World Wide Web and will serve to formulate a proposal for the creation of a European Biological Collection Information Service. Project participants include 20 scientists from 10 EU states and Israel. The co-ordinating project staff with 4 members is housed by the Botanical Garden and Botanical Museum Berlin-Dahlem. The term 'Biological Collection' is understood to include the following main categories: living collections (micro-organisms, botanical and zoological gardens), natural history collections (mainly in museums and universities), data collections (such as used in faunistic and floristic mapping projects), as well as new forms of biological collections (e.g. natural products, collections with the aim to preserve

endangered species, and gene banks). The size of the collection is of secondary importance; on the contrary, we are specifically interested to include smaller and/or highly specialised collections. - By the end of 1999, the project is to develop specifications for a system serving both, the wide range of potential users of collection information as well as the researchers and curators of the collections themselves. For that purpose, a comprehensive survey is carried out, where possible in co-operation with other organisations and projects. Collection information and database resources are to be identified and documented, potential users detected, and technical possibilities for the implementation of the service evaluated. The results will be made public by a constantly updated WWW documentation (see <http://www.bgbm.fu-berlin.de/biocise/>, also for more details concerning the project). Beginning in 1999, the results will be used to formulate a project proposal to obtain the funding for the implementation phase of the project. We should like to ask all institutions and organisations holding biological collection databases to participate in the survey. In case you did not receive the questionnaire, you can either download it from <http://www.bgbm.fu-berlin.de/biocise/TheProject/Survey/> or request it from the following address: BioCISE, BGBM, Königin-Luise-Str. 6-8, 14191 Berlin. e-mail: Biocise@zedat.fu-berlin.de. Fax: (+49) 30 84172 954.

W. G. Berendsohn, Berlin

Discontinued Journal

The abstracting journal *Excerpta Botanica. Sectio A. Taxonomica et Chorologica (EBA)*, edited in connection with the International Association for Plant Taxonomy (IAPT) by the Publishing House Gustav Fischer (Stuttgart), comprised periodically a detailed lichenological section supervised and partly composed by G. Follmann (Köln). Due to financial problems, the appearance of this useful journal had to be suspended in spring 1988. From 1959 to 1988, 65 volumes with more than 250,000 unweighted abstracts and about 2,000 comprehensive, critical reviews, were published.

G. Follmann, Köln

Umbilicariaceae Exsiccatae

At the moment B. Feige is compiling the next fascicle of *Umbilicariaceae exsiccatae* and he would be pleased to receive any material of Umbilicariaceae. He would need about 25-30 specimens for the distribution of the material. Specimens from all parts of the world, including America, Australia and Japan are most welcome. European species of special interest include: *Lasallia hispanica*, *Umbilicaria torrefacta*, *U. polyrrhiza*, *U. rigida*, *U. subglabra*, *U. ruebeliana*, *U. krascheninnikovii*, *U. crustulosa*, *U. corsica*, *U. josiae*, *U. cinereorufescens*, *U. murina*, *U. laevis*, *U. polyphylla* and *U. decussata*. Many thanks for the kind cooperation in advance.

B. Feige, Essen

Monographic Studies in the Cladoniaceae

Over the next five years the Smithsonian Institution and Boston University will host an international team of lichenologists studying the systematics of the family Cladoniaceae. The team, led by P. DePriest and S. Hammer, will include senior collaborators T. Ahti (Helsinki) and S. Stenroos (Turku), postdoctoral fellow D. J. Ellis, predoctoral fellows R. Yahr (Duke University) and M. Sikaroodi (George Mason University), visiting students K. Karkainen and I. Oksanen (University of Helsinki), and undergraduate interns (Boston University). The goal of the project is to form an international team that will compile and enhance the current knowledge of *Cladonia* and its family Cladoniaceae. The team will

produce a synopsis of the 11 genera and 500 species in the family Cladoniaceae for internet distribution, prepare monographic treatments for an eventual worldwide monograph, and develop new methods for examining phylogenetic relationships and species delimitation within the Cladoniaceae. By involving undergraduate, graduate and postdoctoral students, taxonomic expertise in the Cladoniaceae will be passed to a new generation of lichen systematists. The project is funded by a five-year grant from the US National Science Foundation program - Partnerships for Enhancing Expertise in Taxonomy (PEET) program and a two-year award from the Smithsonian Institution Scholarly Studies program, and an Andrew W. Mellon Senior Fellowship to T. Ahti.

P. DePriest, Washington

Workshop: Progress in molecular studies of lichens-methods and applications

This is the second announcement of the workshop/symposium to be held from August 11-15, 1998 in Graz, Austria. The workshop will include three different kinds of sessions: 1) Talk Sessions - containing presentations of current research; 2) Discussion Fora - discussions on topical issues, moderated by leading scientists who will give introductory review papers on the topics, and, 3) Laboratory Seminars - methodological sessions where recent developments are presented. We still have space for additional presentations and poster contributions, please contact M. Grube for details! The workshop will be a good opportunity to meet most of the people currently involved in molecular lichenology, to present your results 'ahead of time'. Check our website (<http://bkfug.kfunigraz.ac.at/~grubem/msl-workshop.htmlx>) for further details, including the preliminary programme. Additional information on Austria, Styria, and Graz is available from: <http://www.austria-info.at>, <http://steiermark.com>, <http://www.graz.at>

M. Grube and P. Blanz, Graz, M. Wedin, London

The iconography of Scopoli's lichens has been discovered !

This note was added at the last moment, just before going to press: in an article published in the journal *Proteus*, nr. 60, 1997, printed in Ljubljana (Slovenia), and written in Slovenian, Dr. A. Piltaver announces the discovery of 115 colour drawings by Thomas Hörman, unmistakably referring to the lichens described by Scopoli in his *Flora Carniolica*. The drawings were found in the Natural History Museum of Vienna. A complete Italian translation of Piltaver's article, and some further comments, will be published shortly in the *Notiziario della Società Lichenologica Italiana*. This important discovery may be of interest for several lichen taxonomists, because many of these drawings can be taken into account in the typification of Scopoli's lichens.

M. Tretiach, Trieste

Personalia

Ted Ahti (Helsinki) is continuing his work on the Cladoniaceae as an Andrew W. Mellon Senior Fellow. He shall spend October and November at the Smithsonian Institution, Washington, DC. He visited Washington and The New York Botanical Garden briefly in February. In March-April he examined the Cladoniaceae collections in the major Portuguese herbaria in Lisbon, Coimbra and Porto with A. R. Burgaz (Madrid), cooperating with P. Carvalho (Lisbon). In April, together with P. DePriest and S. Stenroos he was at Rennes to study the material in Herb. H. des Abbayes (in possession of Dr. J.-L. Massé), and also in the Museum National d'Histoire Naturelle at Paris, hunting for types.

Miris Castello (Trieste) has obtained a permanent position of researcher at the Department of Biology of the University of Trieste. She will continue her studies on the lichen flora of Antarctica and lichens as biomonitors of air pollution in several parts of Italy.

Javer Etayo (Pamplona, Spain) visited Panama two times in 1996-97, where he began the study of tropical lichens and, especially, of lichenicolous fungi. He will try to go back again to the Neotropics, with priority to mountain zones, especially in search for lichenicolous fungi. His material from Central and South America is available on loan (jetayo@masbytes.es)

Gerhard Follmann (Köln) undertook a longer journey through the N Chilean Atacama Desert after the IAL/GLAL meetings at Caraça and Campos do Jordão, Brazil, in September 1997. The main purpose was to study the various effects of heavy El Niño rainstorms on different ecotypes of desert lichens. Long-term observations on alterations of the lichen flora and vegetation of the unique 'fog-oases' along the Pacific Coast of the Atacama Desert were continued. Finally, floristic inventories of some smaller, hitherto disregarded lichen 'lomas' may be prepared.

Trevor Goward (Clearwater, Canada) and **Natalie Djan-Chekar** visited E. Brodo at the Canadian Museum of Nature in Ottawa for three weeks in May. They were working on Trevor's 'Macrolichens of British Columbia' book, and other B.C. lichen studies. Trevor and Ernie also took the opportunity to discuss the Rare Lichens of Canada project on which they are collaborating together with Stephen Clayden. A preliminary version of the rare lichen list has already appeared (as a COSEWIC report), and updates are in the works.

Per G. Ihlen (Bergen) has been granted a dr.scient. scholarship (4 years) from the University of Bergen. He will work on *Rhizocarpon*, mainly the *Rh. obscuratum* group, in the Nordic countries including Svalbard and other Arctic Islands. His supervisors are T. Tønsberg (Bergen) and E. Timdal (Oslo). His approach is mainly classical (morphology, anatomy, chemistry, field studies), but (in cooperation with S. Ekman, Bergen) molecular data will also be considered. Per greatly appreciates receiving material. E-mail: per.ihlen@bot.uib.no

Ludger Kappen (Kiel) informs us that: Lichenology and Polar Biology in Kiel was recently strengthened by **Leo G. Sancho** (Madrid), staying here between April 1997 and January 1998, by **T. G. A. Green** (Waikato University, Hamilton, New Zealand), from October 1997 to April 1998 and also **E. I. Friedmann** (Tallahassee, Florida, USA), in December 1997. There is now excellent cooperation in experiments and brainstorming. L. Sancho brought vagrant lichens from the Spanish meseta to be studied. He also is involved in data evaluation of long-term investigations on lichen activity on Livingston Island, Antarctica, and other research on Antarctic and Spanish lichens. With A. Green manuscripts were prepared, concerning our joint expedition to Granite Harbour, in the Ross Sea region 77°S, Antarctica, where we have studied responses of lichens and bryophytes to strong light at temperatures below 0°C. E. I. Friedmann is bringing material from the Negev Desert to be investigated in our gas exchange machines for comparison with responses of algae from Mongolia.

Scott LaGreca (formerly Harrisonburg, VA) has begun a three-year postdoctoral position as Curatorial/Research Associate at the Farlow Herbarium of Cryptogamic Botany, Harvard University, Cambridge, MA. His primary activity is managing the storage and transferral of 450,000 bryophyte, lichen, and fungus specimens for an NSF-funded herbarium renovation project developed by Curator D. Pfister. He is also assisting with general curation of cryptogam collections. Scott is continuing his research on the molecular systematics of *Ramalina*, and is beginning a synopsis of this genus for the Eastern United States. In addition, he will be a visiting scientist in Copenhagen from May through June, 1998 to work with U. Søchting, A. Gargas, and S. Rosendahl on

molecular population genetics of *Xanthoria parietina* and *X. elegans*.

Thorsten Lumbsch (Essen) has finished his 'Habilitation' on systematic studies on selected groups of the Lecanorales and Pertusariales with an exam lecture on the Flora of Australia on December, 19 last year. He has received a 'Hesienbergstipendium' starting in January 1998 and will continue with his studies in Essen to test his classification proposals in the Agryrineae with molecular techniques.

Robert Lücking (Ulm) has finished a two-year project on 'Neotropical Follicolous Lichens: Taxonomy, Systematics, Phytogeography, Diversity, Ecology, and Use', financed by the Deutsche Forschungsgemeinschaft. It included a revision of follicolous lichens published by the Brazilian mycologist Batista and co-workers, together with E. Sérusiaux (*Lichenologist* 30, 1998); preparative studies for monographs in the series *Flora Neotropica*, with several colleagues, including visits to B, BM, and UPS (*Bot. Acta* 109, 1996; *Nova Hedwigia* 63, 1996, and in press; *Trop. Bryol.* 13, 1997; *Bibl. Lichenol.* 65, 1997); phytogeographical analyses of the Neotropics and tropical Africa, with U. Becker and G. Follmann (*Trop. Bryol.* 13, 1997; *Herzogia* 13, 1998); an analysis of diversity patterns in follicolous lichens (*Mitt. Eidg. Forsch. Anst. Wald Schnee Landsch.* 70), with an experiment using artificial substrates (*Lichenologist* 30, in press); an investigation of the role of invertebrates in diaspore dispersal; and a study of follicolous lichens as bioindicators, with a preliminary list of index values for anthropogenic disturbance, seasonality, and altitudinal zonation for 270 species (*Abstr. Bot.* 21, 1997). From February to April 1998, he held a lichen and biostatistics course at the Univ. Fed. de Pernambuco (Recife, Brasil) supported by the German Academic Exchange Service and the Brazilian CAPES, where he guided the Master's thesis of M. Cáceres. - Drs. L. Costa Maia and M. A. Cavalcante, and the friendly staff at the Mycology Dept., are warmly thanked for their help and support. Robert will continue his studies on tropical lichens with a habilitation grant beginning August 1998, at the Inst. of Plant Systematics, Univ. of Bayreuth. Apart from further work on *Flora Neotropica*, studies will focus on the systematics of Gomphillaceae and Asterothyriaceae, including ontogenetic and molecular aspects. Material on loan from all parts of the world is highly welcome!

Jolanta Miadlikowska (Gdansk, Poland) completed a six-month training in molecular systematics (June-November 1997) in F. Lutzoni's lab (Chicago, USA). Jolanta's Ph.D. thesis is a revision of the genus *Peltigera* based on morphological, chemical, and molecular data. During her visit to the molecular lab at the Field Museum of Natural History, she sequenced both strands of a 1.4 kb fragment from the large subunit nrRNA gene for 97 specimens of *Peltigera* and selected outgroups, as well as the entire ITS region (ca. 700 bp) for 42 specimens selected from the *Peltigera canina* complex. I. Brodo (Ottawa), B. Goffinet (Durham), T. Goward (British Columbia), T. Tønsberg (Bergen), O. Vitikainen (Helsinki), and curators of Polish herbaria kindly provided important material for this study.

Burkhard Schroeter and **Mark Schlenz** (Kiel) are preparing themselves for an expedition to Rothera Island, maritime Antarctic, in order to study ecology and physiology of lichens and bryophytes in January and February 1998. They enjoyed seminars by **W. Hartung** (Würzburg), about the role of ABA also in lichens and about the diversity of follicolous lichens in tropical forests by **R. Lücking** (Ulm), in this winter semester.

Stefan Zoller (Birmensdorf) who is pursuing a PhD. with Ch. Scheidegger, visited F. Lutzoni's lab (Chicago) from March 14-May 24, 1997. His Ph.D. dissertation will investigate the genetic variability within and among populations of the threatened foliose lichen *Lobaria pulmonaria* in Switzerland. During his visit to the molecular lab at Chicago, Stefan was able to screen several genomic regions for genetic markers that would be informative at the population level. Using these markers, he was able to

screen more than 95 individuals from the 8 most important populations in Switzerland. During his stay, more than 90,000 base pairs of nucleotide sequences were gathered.

New Literature

A. SAAG, 1998 - *Evolutionary relationships in some cetrarioid genera (lichenized Ascomycota)*. - Dissertationes Biologicae Universitatis Tartuens 34: 1-45 + 9 articles published in various journals. - This is a splendid summary of recent studies on cetrarioid lichens by Saag and his collaborators. It is a printed Ph.D. thesis, which Andres Saag defended at the University of Tartu on 26 March 1996. Cladistic analyses are a specialty of Saag's study.

O. VITIKAINEN, T. AHTI, M. KUUSINEN, S. LOMMI & T. ULVINEN, 1997 - *Checklist of lichens and allied fungi of Finland*. - Norrlinia, 6: 1-123. Available from: Anne Mainas, Botanical Museum, Finnish Museum of Natural History, P.O. Box 7, FIN-00014 Univ. Helsinki, Finland. Price: FIM 100 plus postage. - A checklist of lichens and lichenicololous and allied fungi occurring in Finland. 1,624 taxa are accepted (1,422 lichen species). Many are new to Finland. The provincial distribution of each taxon is indicated (note that in Finland there is a traditional system of 'biogeographic' provinces, and that administrative provinces are not used on labels of specimens or in floristic publications). The Finnish and Swedish vernacular names are given for many species and genera (including several new Finnish names). The species listed as threatened in Finland are classified into six categories. A special symbol is used to indicate if the nomenclatural type is from Finland. No validly published new names are introduced. The list includes many little known species whose status is uncertain.

T. Ahti, Helsinki

S. HUNECK AND I. YOSHIMURA, 1996 - *Identification of Lichen Substances*. - Springer Verlag, Berlin, p. xi + 493, incl. 67 figs. Price: DM 390 (hardback). - This volume provides an up-to date and comprehensive alphabetic listing of lichen substances; each entry itemises such information as empirical and spatial formulae and TLC retention values for three commonly used solvent systems, and in each case specifies a lichen which contains the particular compound - all backed up by detailed bibliographic citations. This work is not a replacement for Cichita Culberson's invaluable guides (1969, 1970, 1977) which cross-references particular compounds to particular lichens, but provides a wealth of complementary and chemical data; it also includes those compounds newly discovered in lichens since 1976. A short introduction (9 pp.) on the history, meaning, value etc. of lichen substances is followed by a most useful chapter (113 pp.) on their identification, colour reaction, UV, IR and NMR spectroscopy, mass spectrometry, microcrystallization (including 54 pages of photographic plates), TLC, HPLC, GLC and X-ray analysis. Although rather pricey, this is a fundamental work for all those involved in lichen chemistry.

M.R.D. Seaward, Bradford

B. McCUNE AND L. GEISER, 1997 - *Macrolichens of the Pacific Northwest*. - Oregon State University, Corvallis, xiv + 386 p., ISBN 0-87071-394-9, (soft cover). Order from: Oregon State University Press, 101 Waldo Hall, Corvallis, OR 97331-6407. Credit card orders by phone: (+1) 541-737-3166; fax: (+1) 541-737-3170 e-mail: osupress@ccmail.orst.edu - Price: US\$ 25.95. - This guide includes keys to 92 genera, about 460 species of macrolichens that are known (or can be expected) in Oregon and Washington. Individual species treatments with colour photographs and numerous line drawings are provided for 210 species, mostly those that are found in forested ecosystems.

Each treatment contains species description, air pollution sensitivity, range, substrate, habitat, and notes that give references to similar or closely related species. The introductory chapter explains essential morphological terms, and the glossary at the end explains and illustrates all additional terms. The nomenclature is dealt with in a table that lists all names and their synonyms. This table is a must: the generic concept in lichens has changed very much since my salad days. This guide nicely complements *Lichens of California* by Hale & Cole, published in 1989, and it extends user-friendly lichens manuals northward to the Canadian border. The book is superbly illustrated with photographs by S. & S. Sharnoff and with very good line drawings by A. Mikulin. Critical comments? Keys may be too technical for the audience of this guide, but we will learn. I missed the scale in the photographs. A small 1 cm bar in a corner would greatly improve the interpretation of colour pictures. Without this scale, *Peltigera venosa* looks to me more like *P. horizontalis*. In the keys a bold type is used to mark the name of species that received full treatment. The authors missed this coding in the first group of keys to the genera. All parties involved in this publication should be congratulated for an excellent work. Our thanks should also go to the USDA Forest Service, whose contribution made this book relatively inexpensive.

A. Ceska, Vancouver

U. ARUP, S. EKMÁN, I. KÄRNEFELT & J. E. MATTSON (eds.), 1997 - *Skyddsvärda lavar i sydvästra Sverige*. - SBF Förlaget, Lund, 297 pp., ISBN 91-972863-1-1. Hardbound. Order from SBT-Förlaget, Ö. Vallgatan 18, S-223 61 Lund, Sweden. Price: 300 SEK plus postage. - Serious criticism can be raised against this book: it is written in Swedish! I know other books on 'red-listed' organisms, and many have interest - if any - only at a very local level. I was wondering what these never-ending 'red-list' stories have to do with science, and how much with increasing deforestation by so many pages of glossy, but desperately empty pages. The title of this work could somehow justify its language: *Lichens in need of protection in southwestern Sweden*. Actually, the book is opened by a local historical introduction (how local, however, are Linnaeus, Retzius, the two Fries, Hulting, Malme, Du Rietz, Degelius, Almborn, etc.?), followed by the usual chapter on general biology plus glossary, and by a detailed, and very well done, description of the survey area. The results, apparently, refer to the survey area only. By careful reading, however, one is astonished by the quantity and quality of information assembled by the authors. They have visited 896 localities in five counties, and have compared old and recent records; for five localities it was even possible to compare complete floristic lists. The book treats topics such as the modifications of local lichen floras and their causes, air pollution and forest management, lichens found in different habitats and on different trees, lichen communities, forest continuity (with a newly proposed list of indicator species), recommendations for protecting special habitats with a high conservation value. All of this is treated with such a degree of detail, and so well, as to raise the interest of the book far beyond the narrow limits of southwestern Sweden. Those who cannot understand the difficult-sweet music of Swedish can still find a point of interest in the nice colour photographs, and in the tables and diagrams illustrating the text. The final third of the book is occupied by a list of 116 red-listed species, with a wealth of information including brief morphological and ecological descriptions, protection status with a discussion, distribution maps, lists of localities, relevant literature, and, especially, by 132 splendid colour photographs. Here many of us have the opportunity of admiring, for the first time, such species as *Biatora gyrophorica*, *Gyalideopsis anastomosans*, *Opegrapha soreidifera*, *Scoliciosporum pruinosum* (admittedly, none of them can ever hope of receiving an albeit sour apple from a lichenological Paris...). The iconographic part, by itself, would be enough for recommending this work to a wider international audience. The book is hardbound with a nice colour picture, the printing is neat and the paper is glossy, but,

positively, nobody could ever consider it as a contribution to deforestation. Besides the language, what remains to be criticized? Minor details, such as the absence of authors' citations after the species' names, a few controversial points here and there, and - as far as my Swedish can permit - three or four printing errors. There is only a single comment left, and this is for the authors: congratulations!

P.L. Nimis, Trieste

REPORTS

Symposium: Taxonomy, Evolution and Classification of Lichens and Related Fungi (Linnean Society of London, 9-11 January 1998)

The symposium was a major success and enjoyed by all. Attended by c. 80 delegates from 18 countries with many additional UK BLS members joining for part of the programme, this was the first conference of its kind held in Europe specifically devoted to systematic problems in lichens at all taxonomic levels using both traditional and up-to-date molecular methods. It was especially noteworthy that the majority of speakers were well below the age of 35, a clear sign that lichen taxonomy is very much alive and an exciting area for original research with many important questions to be solved! It attracted people from different backgrounds including both professional and keen amateur. We are at an exciting stage of redefining genera based on more natural relationships and that molecular information has an important role to play (particularly at generic and higher levels) was evident from several presentations, especially on *Parmelia* and *Lecanora* s.lat. This led to a greater appreciation (including by the most ardent sceptic!) of the value of molecular datasets. It was also gratifying that there is a growing realism that recognising more informal groupings, perhaps at a sub-generic level as an interim measure, rather than describing new genera, is preferable until more taxa have been properly examined. Certainly debate was extremely lively after virtually all presentations until the final session when there were signs that the action-packed three days were finally beginning to take their toll. Leaving science aside it was also a most convivial affair. The Linnean Society was an excellent venue and appreciated by all. We were initially treated to the Dougal Swinscow Memorial lecture presented by Rosmarie Honegger, who gave an enlightening and fascinating account on aspects of the lichen symbiosis. The symposium dinner was also held at Spaghetti House, Jermyn Street where the beer flowed long into the night. A further opportunity for participants to meet was thoughtfully provided by David Hawksworth at his north London home at the end of the conference. We owe special thanks to Mats Wedin who as principal organiser must be congratulated for its great success. We are also extremely grateful for the generous financial assistance and co-operation of the British Lichen Society, Linnean Society and Systematics Association without which this symposium could not have taken place. The proceedings will be published in a forthcoming issue of the *Lichenologist*, which will also be available as a separate volume, later this year.

W. Purvis, London

Lichen Excursion held in August 1997 in Québec, Canada

As part of the 1997 Annual Meeting of the American Bryological and Lichenological Society, held in August in Montreal, Canada, I. Brodo, S. Clayden, F. Lutzoni and C. Roy led a field trip entitled *Lichens and Bryophytes of the Laurentian Highlands and St.*

Lawrence Valley. A congenial group of twenty-eight bryologists and lichenologists from the United States, Canada and several European countries, with diverse interests and backgrounds, participated in this extremely well-planned, four-day (August 3-7, 1997) excursion to a variety of species-rich habitats. Stops were scheduled to allow sufficient time for the serious collectors to make thorough collections, especially of the species indicated as unique to each site in the excursion booklet, and for the leaders to teach participants less familiar with the region's local flora. A hillside sugar maple-yellow birch-beech forest in The Mont Wright Parc de Conservation Municipal, north of Québec City, was visited en route to Université Laval Biological Station in Forêt Montmorency. The biological station laboratory space allowed participants to use of the microscopes and keys provided by the excursion leaders for species determinations. Evenings were spent with lab work, stimulating informal discussions, short collecting trips close to the field station, or simply enjoying a chat and a beer. The second day took us north to collect along road cuts, in balsam fir and white birch woodlands, and off rock outcrops along the Chute de la Rivière Noire, in the Réserve Faunique des Laurentides within the Forêt Montmorency. *Ochrolechia gowardii* on *Betula* and *Pilophorus cereolus* on a shaded rock outcrop were highlighted lichen species. The rare aquatic lichen *Hydrothyria venosa*, on rocks in the Rivière Noire above the falls, merited its own special stop. The swarms of insects in the edge vegetation of the ombrotrophic structured bog, visited in the late afternoon of the second day, did little to diminish the groups' cryptogamic zeal. A quick stop at an open sandy site under a hydroelectric line allowed for S. Clayden to end the day with a clarification of the most important distinguishing characters of the five *Stereocaulon* species flourishing in this last stop. Though animals were not actually sighted, evidence of caribou at the stop in the provincial Parc des Grands-Jardins was a reminder that the open black spruce forest at this stop was to be one rich in lichens and bryophytes common to northern boreal floras. The extensive *Cladina* cover, typical of open lichen woodlands, the more shaded *Pleurozium schreberi* vegetation of the edges of the Rivière Malbaie, the lichen encrusted glacial erratics and the sandy road cuts all provided a variety of microhabitats for careful exploration and marvelous collecting at this special site. Turning eastward, the excursion bus descended to sea-level and traveled along the northern edge of the St. Lawrence River to the Centre Écologique de Port-au-Saumon. Here, our charming cabins, the magnificent view from the dining verandah of ships sailing the St. Lawrence, and the congenial and lively conversations, all competed for our attention with the lichens and mosses on the somewhat maritime shoreline rocks, the shaded ravines, and the woodland trails on the grounds of the center. Again, laboratory facilities at the station were made available for work on our day's collections. The return trip to Montreal included a surprise luncheon stop in Vieux-Québec, allowing us to participate in a few of the delightful activities of 'les fêtes de la Nouvelle-France', before we had to bring to a close what had been an extraordinary field trip and a challenging learning experience: a very special trip for which our organizers, Ernie, François, Steve and Claude, all deserved and received our heartfelt thanks.

E. Kneiper and O. Breuss, Wien

IAL field meeting in Brazil in 1997: Re-collecting Vainio

About 25 lichenologists participated in the IAL Field Meeting in Caraça, Brazil, on 16-22 September 1997. About a half of them were from Europe, and the rest from South America and Japan; conspicuously, no North American lichenologist was present. The meeting commemorated Edvard A. Vainio (Wainio), who conducted field work in the area in 1885. The meeting took place at the old Caraça Monastery (Santuário do Caraça), which is a fascinating historical monument, located about 120 km SE of Belo Horizonte, in the Município Catas Altas (to 1995 in Mun. S. Barbara), State of Minas Gerais.

Although no longer a real monastery, but a hotel and an educational centre of the Catholic Church, Caraça, with its rooms, corridors and the picturesque small dining room by an open kitchen still has its special atmosphere, which we all enjoyed very much. Dr. Marcelo P. Marcelli, the main organizer, had done everything to provide us with a good opportunity for working on tropical lichens. We all had appropriate collecting permits from the Brazilian government, and we all 'duplicated' our collections in the evening to leave a set of everything at the Instituto de Botanica, São Paulo (SP). The Santuário is surrounded by Parque Natural do Caraça (11,233 ha), an extensive, uninhabited forest region at the altitude of 1,300-2,100 m in the Serra do Caraça, an extension of the great Serra do Espinhaço. We could start collecting 100 m away from the buildings and climb up to the mountains to different directions following excellent trails. The lichens are abundant, e.g., in the widespread open second-growth woodlands dominated by the low, grey-leaved tree *Ermanthus erythropappus* (Rubiaceae), on trees, rocks, and even soil. Fires are frequent, but moister, and older rainforest habitats do also exist. It can be expected that all the lichens which Vainio described from the area (he described about 250 species from Brazil) are still there. We did find many of them! Some are still not known from elsewhere, so that they were really 'recollected'. The material has not yet been worked up, but about 70 species of Cladoniaceae have now been recorded from Caraça, some still being undescribed. In the evenings we listened to lectures, most of them being related to Vainio. The Finnish participants (Vitikainen, Stenroos, Ahti) outlined his biography and collections. Others evaluated his taxonomic work in different groups such as Thelotremaaceae (Sipman), Graphidineae (Follmann), calicioid lichens (Tibell), *Lobaria* (Yoshimura), Cladoniaceae (Ahti), or Vainio's Brazilian lichen flora (Marcelli). Vainio, with his phylogenetic approach, proposed a lichen system which was in many ways superior to the dominant Zahlbrucknerian system, but he also failed in the treatments of some groups. There is no doubt, however, that he laid a firm basis for treatments of Brazilian lichens, and he well deserves the title of 'Father of Brazilian lichenology': Caraça is a major *locus classicus* for tropical lichens. Vainio's main collection is now at the University of Turku, Finland (TUR-V). It is in an excellent condition, due to the efforts by a former curator, Dr. Reino Alava, and the whole TUR herbarium is being moved to a brand new building in 1998. The present curator of Vainio's lichens is Dr. Soili Stenroos. The Vainio meeting was followed by another one, the GLAL-3, i.e. the third meeting of the Latin American lichenologists.

T. Ahti, Helsinki

GLAL3 Meeting, Campos do Jordão (São Paulo, Brazil)

The Grupo Latino Americano de Liqueólogos (GLAL) met for the third time (GLAL3) at Campos do Jordão City, São Paulo State, Brazil, last September 23-28. During the two year period 1995-97 the elected representative was Dr. Marcelo P. Marcelli (Instituto de Botânica de São Paulo, Brazil), who was also in charge of the meeting organization and the President of GLAL3. The sessions took place in a peaceful place, surrounded by extraordinary *Araucaria* tropical forests which gave an appropriate backdrop for the meeting. GLAL3 was attended by 35 lichenologists from Latin America, Europe and Japan. The conference was related to Latin American lichens and lichenology, with special reports for Argentina, Brazil, Chile and Guianas, as well as others devoted to taxonomic groups: Cladoniaceae, Parmeliaceae, Peltigeraceae, pyrenocarpous lichens and *Lobaria*. Chemistry and different types of lichens' uses were discussed. Oral communications treated subjects related with lichens systematics, floristics, ecology, biochemistry and activities of secondary metabolites. Biodiversity and species conservation problems were also discussed. One and a half days were dedicated to field work: 50 young specimens of *Araucaria angustifolia* offered by the Horto Forestal de Campos do Jordão were planted

by the participants to commemorate the meeting. The growth of these 'dated' trees will be monitored in order to verify the colonization of the trunks in this lichen-rich area. Harrie Sipman and Isao Yoshimura proved to be great tree's planters: if, by chance, you have lots of trees to be planted, do not hesitate to call them and your problem will be rapidly solved! The complete text of the conference and some oral presentations will be published in a book edited by M.P. Marcelli and M.R.D. Seaward under the title: *Lichenology in Latin America*, which should be printed during June. More than a formal association, GLAL continues to be a 'crowd' of Latin-American people interested in lichenology, working together to solve common problems. GLAL meetings are biennial, and are organized by the elected GLAL representative, who is also the official contact of GLAL with the scientific community. Last September, during the GLAL3 assembly, Dr. Susana Calvelo was elected as representative for the biennium 1997-1999. It was also decided that GLAL4 will be held at Bariloche (Argentina), in October 1999. Dr. Susana Calvelo (BCRU) is in charge of the organization. She can be contacted for further information on GLAL and GLAL4. Bariloche is a city of c. 80,000 inhabitants, located 1,600 km SW of Buenos Aires, near the Nahuel Huapi National Park; surrounded by mountains up to 3,500 m high, covered by *Nothofagus* forests. We invite you to participate to GLAL4!

M. P. Marcelli, São Paulo and S. Calvelo, Bariloche

O.P.T.I.M.A. Commission for Lichens meeting

The meeting was held in Paris, at the Museum National d' Histoire Naturelle, on May 9, 1998. Present: P.L. Nimis (chairman), E. Barreno, A. Crespo, J.M. Egea, M. Grube, V. John, X. Llimona and M.R.D. Seaward (meeting secretary). - After a brief welcome of J.M. Iriondo, Secretary General of OPTIMA (Organization for the Phyto-Taxonomic Investigation of the Mediterranean Area), Nimis outlined the past and present situation regarding the publication of checklists for the c. 60 operational geographic units (countries and their subdivisions) currently identified as constituting the Mediterranean study area. To date, 6 checklists have been published both in paper form and on the internet (Israel, Italy, Morocco, Tunisia, Turkey, Ukraine), 1 was provided on the internet only (Slovenia), 1 was published in paper form only (Macaronesia), 2 were in an advanced stage of preparation (Iberia and Cyprus), and 4 were in preparation (Algeria, Greece, Portugal and Serbia). By next year checklists for 14 countries, for a total of 45 operational units, will be available. Among the remaining countries, Albania and Egypt were possible, S France, Libya, Lebanon, and Croatia were doubtful or difficult. Consideration was then given to a more consistent format for the gathering and publication of checklists. A presentation was provided by M. Grube on the content of the lichen OPTIMA internet site, based on the database at Graz and using the Italian lichen flora as a model, its potential application, and methods for updating it. Several checklists were linked and are now collectively searchable, providing a first nucleus of a general checklist of Mediterranean lichens. Of particular importance was the production of a Thesaurus of synonyms, accessible via internet, which facilitates the linking of several checklists, even when they follow different nomenclatural standards. Thought was given to updating published checklists. Guidelines for the presentation of all OPTIMA data were considered, particularly in terms of supplementary information (biogeography, habitat, etc.), definition, editorial standards and abbreviations. Authors of checklist were suggested to update them also by increasing the number of geographic subdivisions, when this is feasible. It was proposed to establish an inventory of herbaria holdings of Mediterranean material, the information being derived by Internet via IAL. Nimis raised the question of finance; to date, \$ 23,000 had been committed from his own research budget, for which many participants were most grateful, but alternative sources should be sought, both by individuals and collectively. In spite of the restricted budget, however, the project is proceeding well, and perhaps even faster than

originally expected.

M.R.D. Seaward, Bradford

Ulzijn Cogt (1940 - 1996)

It makes me sad to write the obituary of my dear friend Prof. Dr Ulzijn Cogt, who died of liver cirrhosis on July 1st 1996 in Ulaan Baatar at the age of 56, much too early for his family and science. He was born on March 1st 1940 as the 7th boy of eight brothers and one sister at Kyargas, a village of theUvs province in the northwestern part of Mongolia. His father Ulzii was a herdsman and the young boy was very early confronted with the hard work in the mountain steppe. Ulzijn attended the primary and secondary school at Ulaangom (the centre of theUvs province) from 1958 to 1962, and then went to Ulaan Baatar to study biology at the Mongolian National University, where he made his diploma on 'Plankton'. In 1959, Ulzijn married Ts. Tserev, a medical doctor, from which he had a son. From 1962 to 1969 Cogt was teacher of botany at the Mongolian Teacher's University in the Mongolian capital and started research as a scientific co-worker at the Botanical Institute of the Mongolian Academy of Sciences in 1969. To learn more about lichens he went to St. Petersburg (Leningrad), one of the lichenological centres of Russia, where he also learned to master the Russian language. The title of his dissertation was *Soil lichens of the Mongolian Peoples' Republic*. Between 1970 and 1978 Cogt took part in some Russian-Mongolian botanical expeditions to different parts of Mongolia. The lichenological results were summarized in Golubkova's *Conspect of the Lichen Flora of the Mongolian People's Republic* (Leningrad 1981). I met Ulzijn for the first time in Ulaan Baatar in 1978, when we started our first Mongolian-German expedition to the Changai Mountains; he was the only lichenologist in Mongolia. Later on, in 1983 and 1988 he accompanied us on our 2nd and 3rd expeditions to lake Chövsgol in the northern part of Mongolia and to the Nemezt Depression in the Gobi Desert, and I shall never forget the joint adventures during these trips. Ulzijn was always very helpful, not only in contacting the local Mongolian authorities, but also in loading and unloading our lorry, or in pitching the tents. He was the first to wake up in the morning, and when I crept out of the tent he already had prepared the traditional Mongolian tea; later on, through the influence of us Europeans, he developed a taste for coffee. I particularly remember the episode on the first day of our 1988 expedition, when we made a short break in the steppe near Lun (ca. 60 km west of Ulaan Baatar), and Ulzijn opened a bottle of *Archi* (Mongolian vodka) to put the spirits of the mountains in a favorable mood by spraying some drops of the vodka in all four directions: with the rest of the bottle we 'saved our souls'. In 1988 Ulzijn Cogt came to Germany, and learned enough German at the Herder-Institute in Leipzig to write his dissertation on the *Flechtenflora der Mongolischen Volksrepublik (MVR)* and to defend it at the Faculty of Sciences of the Martin-Luther-University in Halle-Saale under the supervision of Prof. R. Schubert in 1990. Learning German was certainly not so easy for Ulzijn, but this demonstrated his courage and endurance. In 1991 he became professor and leader of the project *Mongolian Flora* at the Institute of Botany of the Mongolian Academy of Sciences in Ulaan Baatar. Grants from the DAAD (Deutscher Akademischer Austauschdienst) permitted him to stay for several months at the Botanical Museum in Berlin-Dahlem in 1992 and 1993, where he finished, with the help of H. Sipman, his last paper 'Die Flechten der Mongolei' (*Willdenowia* 25, 1995). Ulzijn Cogt was honoured in Mongolia with the «Gold Star» and several other medals for his merits in science. Besides lichenology he liked flowers, cooking and skating, and was a passionate stamp collector; he was especially fond of his grandson, who was always with him in Ulaan Baatar. In Mongolia we often passed near 'ovos', and every time Ulzijn Cogt offered something at these holy places. I am certain that his soul will be on the right path to the Nirvana.

S. Huneck, Halle-Saale

FORUM

Topic: LICHENS: A SPECIAL CASE IN BIOGEOGRAPHICAL ANALYSIS.

Biogeography is the study of the geographic distribution of organisms, including the typification of their distribution patterns, and the analysis of laws and causes regulating them. In my opinion, Biogeography in general has suffered from the widespread use of reductionist-mechanistic paradigms of explanation, in spite of its being a synthetic discipline 'par excellence', requiring, more than others, a holistic-interdisciplinary approach: after all, uttermost complexity is the main feature of any distributional area... This topic, however, would lead us too far. Here I would just like to stimulate a discussion on new perspectives, methodologies and basic assumptions in lichen Biogeography. Due to obvious space constraints, I will have to limit myself to a few scattered statements, hoping that they could help in promoting some re-thinking in a field which, in my opinion, badly needs it. I begin with an obvious, but important consideration: lichen Biogeography still largely follows the same basic concepts, and even the same terminology, as developed for vascular plants in Phytogeography. Is this always correct? It is true that both vascular plants and lichens are poikilothermic organisms, but: a) most lichens are also poikilohydric, unlike most vascular plants, b) lichens seem to have much slower evolutionary rates, c) the dispersal mechanisms of lichens are quite different, and d) their distributional areas are, on the average, much wider. Just an example: many lichenologists, especially in Europe, have tried to interpret the distributional areas of lichens from a 'local-taxonomical' point of view, by distinguishing different distribution types ("floristic elements"), several of which clearly show their weakness when the analysis is enlarged to wider regions. Such "floristic elements" are often named according to well-established concepts of Phytogeography (Arctic-Alpine, Boreal-montane, Mediterranean, etc.). However, how often does an 'Arctic-Alpine' lichen belong to the same element of an 'Arctic-Alpine' vascular plant? We all know that this is more the exception than the rule, and that several lichens considered as Arctic-Alpine in e.g. Europe do also occur in such distant areas as the mountains of the Tropical zone, or even Antarctica. Many of them are crustose, reproduce sexually, grow on siliceous rocks, and belong to supposedly 'ancestral' groups of Ascomycetes: maybe these features have a deep meaning, which we are far from being able to reveal. The present State of the Art of lichen Biogeography, as I see it, shows a confused, scarcely original conceptual basis, without much integration of different disciplines, and with but poor efforts towards more logical-numerical approaches. Lichen Biogeography, in my opinion, should make a great effort to radically change its basic principles, and hence also its terminology; we should start re-thinking lichen Biogeography from a lichen perspective, and I am convinced that this is likely to drastically modify many of the currently accepted assumptions. - The distributional patterns of organisms depend on: a) geographical factors (spatial and ecological conditions), b) time, c) reproductive strategies, and d) dispersal mechanisms. Their typification requires at least: 1) a good taxonomic basis, 2) a sufficiently representative number of localities, 3) a knowledge of relationships between ecological requirements of a taxon and the ecological characteristics of the areas in which it occurs, and 4) a knowledge of tectonic events which have affected these areas (orogenic processes, plate tectonics, climatic changes, etc.). Here are just a few comments on the previous points. - On the one hand, the interpretation of the species (as well as of the genus) concept is still very open to discussion in lichenology, and, on the other hand, several parts of the world are still very little known. Thus, basic data are still too scanty

and fragmentary as to permit decent generalizations. Recent research shows many cases of the same species being named differently in different Continents, revealing an unexpected degree of similarity among distant floras, such as those of the circum-Mediterranean region, Sonora-California, and even parts of Australia and Tasmania. Furthermore, little is known on the genetics of lichenized fungi: how is that widespread but widely disjunct species are able to maintain such a high degree of morphological and ecological homogeneity? Genetic exchange seems improbable. We also know that one and the same thallus can be formed by hyphae coming from different spores... Finally, little is known about the reproductive mechanisms of complex lichen thalli: their morphological, functional and ecological stability in widely distant areas are surprising. Vegetative reproduction seems to affect only a minor share of the total pool of species, being most frequent in presumably 'recent' groups. What do we know about the origin of lichens? Several authors hypothesized that fungi colonized the terrestrial environment at the same time of vascular plants (mycorrhizae or parasitism). However, why could have not lichenization been the first form of truly terrestrial life? Fungi and algae were abundant in freshwater streams before the Earth was colonized by life: those who have studied the strange combinations of cyanobacteria, fungi and cyanobacterial lichens which occur on south-exposed slopes of the Mediterranean area and on desert rocks with some water percolation will probably support this hypothesis. In the Cambrian, eucaryotic life was firmly established: the primitive siliceous rocks (granites, basalts) were there, ready to be colonized, while the climate was glacial, or cold. The atmosphere resembled that of today in terms of the concentrations of gases, but we do not know either what the vapour tension was, nor the atmospheric dynamics of those times. In Africa we find signs of interglacial periods and of an important process of plate migration. After that, climate became warmer, and the movement of tectonic plates started spreading in a north-south direction. My point here is that lichens are probably among the earliest organisms which colonized the terrestrial environment. To understand the relationships between their present distributions and present ecological conditions we should refer to the little we know about these conditions when lichens started to develop as the pioneers of terrestrial life. SUBSTRATA - Lichens, due to their slow growth and to their peculiar physiology, are particularly sensitive to the substrata on which they develop. Terrestrial habitats in the Palaeozoic consisted only of siliceous rocks and mineral soil: the first adaptive radiation in lichens is likely to have occurred on these substrata. The distributional patterns of silicicolous lichens (and especially of the most primitive taxa) might well be the most relevant for reconstructing their evolutionary history. Tree bark, on the contrary, is a much younger substratum. In the Carboniferous, the Earth was covered by arborescent Pteridophytes, but probably the evolution of saprophytic fungi capable of decomposing lignin was still on the way. The 'palm-like' structure of these first 'trees' was not very favourable to lichen growth. The radiation of Gymnosperms, i.e. the evolution of monopodial branching, favoured the creation of new habitats, tree boles and tree crowns, which, with a more efficient trapping of atmospheric particulates, often enriched in nitrogen compounds derived from the more intense animal life, were much more favourable for the adaptive radiation of epiphytic lichens. This should be considered when comparing distributional patterns of saxicolous and epiphytic lichens; by the way, one could wonder whether there are historical differences between acidophytic species mostly bound to conifer bark (supposedly older) and many neutro-basiphytic lichens, such as those of the *Xanthorion* alliance. As far as terricolous lichens are concerned, we should distinguish between lichens of mineral siliceous soil and those occurring on organic soil, the latter habitat certainly being much younger. Perhaps it is not a case that a relatively young genus, like *Cladonia*, finds its maximum diversity on such substrata. Similar considerations apply to several basidiolichens, which exhibit a much less intense adaptive radiation, both in terms of number of species, and of morphological and ecological complexity. OTHER

ECOLOGICAL FACTORS - Lichens are particularly sensitive to microclimatic conditions, and this may be the reason why sometimes their distributions do not fully coincide with macroclimatic subdivisions of the Earth. As far as light is concerned, high-mountain lichens seem to have broad adaptations both to the quantity/qualities of total radiation and to the incidence of short-wave UV radiation. The photosynthetic mechanisms of lichen photobionts are basically the same as those of other terrestrial photosynthetic organisms, and lichens from different habitats often have the same type of photobiont: adaptations of the photobionts to light conditions could well precede those of the lichen symbiosis! During the Cambrian, UVB radiation was probably more intense, but perhaps not much different to that of some desert areas today. Several species with a Mediterranean-Macaronesian-Californian disjunction occur in areas with high direct solar radiation, and might have differentiated at the margins of the ancient Thethys Sea: most of them are silicicolous (a minor part being bound to siliceous mineral soil), and only a few of them, such as *Cetraria merrillii*, are epiphytes. In Europe and elsewhere the lichens peculiar of the high 'Mediterranean' mountains still await a decent phylogeographic characterization: the floristic features of Mediterranean mountains, at least in Europe, were often interpreted on the basis of a 'North to South' perspective, which does not seem to be the most fruitful one: on the contrary, many 'northern' species might have derived from 'southern' ancestors. The dependance of lichen distributions from climatic conditions can be illustrated by a brief discussion of the term 'Mediterranean' as applied to lichens. The total distributions of many so-called 'Mediterranean' lichens have nothing to do with those of Mediterranean vascular plants: lichens extend over much wider areas with similar climatic conditions (*Isoclimatic Mediterranean Area* of Daget), and do occur in widely distant areas with similar ecological conditions (Mediterranean and Irano-Turanic regions, California, parts of Chile and Australia, South Africa). How was such a distributional pattern achieved? By long-distance dispersal, or by the much older persistence of similar climatic conditions in these areas? I'd like to end with some final, and, in my opinion, fundamental questions: a) what are the barriers erected by Nature against lichen diaspores? b) what are the chances of a fungal diaspore to travel - and through what carriers - from e.g. the Arctic to Antarctica, and to find a suitable photobiont there? c) how can newcomers face the concurrency of indigenous species? d) is there any relation between distributional patterns of 'bipolar' species and tropospheric currents? Any evidence for or against these questions? ...I guess that much exciting work is still ahead of us....

Eva Barreno, Valencia

We would like to thank Eva Barreno for the introduction to this subject, and welcome this long-overdue discussion. Many statements on lichen biogeography rest heavily on common assumptions and preconceptions on the evolution of lichens, some of which we think could usefully be included in this discussion. We would like to take the opportunity to point out a few details concerning one of the most often repeated statements about the evolution of lichens - that many extant groups of lichenized ascomycetes are likely to be very old in comparison with other ascomycetes and that the lichen life-style itself is ancient (Hawksworth, *Bot. J. Linn. Soc.*, 96, 1988, and references summarised there; Galloway, *Symbiosis* 11, 1991, and in Hawksworth: *Ascomycete Systematics*, 1994). Our aim here is not to criticise the authors of these papers (their scholarly studies are excellent), but to show that their statements and conclusions should not just be repeated in publications produced today without critically assessing what support these conclusions have from recent hypotheses on natural, evolutionary relationships. Lichenized fungi of some sort may date back to Devonian time (Taylor et al., *Nature* 378, 1995) but as the fungi generally are very poorly represented in the fossil record, it is extremely difficult to suggest if this is 'old' compared with fungi in general. We must base our assumptions of

the origin and relative age of lichens on corroborated phylogenetic hypotheses which by necessity must be based on data from extant taxa. That we must look for evidence of antiquity in present-day taxa is also the explicit views of Hawksworth (*Bot. J. Linn. Soc.* 96, 1988) and Galloway (in Hawksworth: *Ascomycete Systematics*, 1994). The papers by Gargas et al. (*Science* 286, 1995); Eriksson & Strand (*Syst. Ascomycetum* 14, 1995); Landvik (Thesis, Univ of Umeå, 1996); Wedin & Tibell (*Can. J. Bot* 75, 1997) and Wedin et al. (*Pl. Syst. Evol.* 209, 1998) - all based on the same pool of publicly available SSU nrDNA sequence data from the EMBL/GenBank database - are examples of testable hypotheses of lichen evolution published to date, which are based on data and not on individual researchers assumptions about evolutionary scenarios. Do we find any support for the idea of lichens as ancient fungi in these papers? No - recent molecular phylogenetic hypotheses gives no support whatsoever for viewing lichenization as an 'ancient' state, neither within the fungi in general, nor within the ascomycetes in particular. The extant lichen groups included in these analyses are all likely to be derived - their ancestors have evolved after the main split of ascomycetes and basidiomycetes, and after many major lines within these have radiated. In fact, Lecanorales, the order to which most lichens belong, and the group to which almost all taxa usually mentioned in the discussions on 'ancient' lichens belong, is very likely to be a relatively advanced group within the ascomycetes, judging by published phylogenies. Some earlier statements are, of course, clearly supported by the phylogenies cited above, including that Lecanorales suborder Peltigerineae (Peltigerales) are likely to be basal within the Lecanorales (Hawksworth, *Trans. Brit. Mycol. Soc.* 74, 1980). In the published SSU phylogenies, many lichenized groups are admittedly not represented. Many of these are included in still unpublished investigations by other workers, and are thus hard to include in this discussion. These unpublished studies do not, as far as we are aware, contradict our statements here. Thus, anyone who wants to claim that lichens are 'older' than other fungi must invent extinct hypothetical lichenized fungi which have no extant lichenized descendants, if they want to postulate that lichens are ancestral to (or older than) other fungi. If we accept such speculations, we may create whatever scenarios we want and need to suit our preconceptions. Clearly, for biogeography, systematics, and all branches of lichenology, we need to have our basic assumptions as well corroborated as possible by evidence from different sources. We cannot continue to use hypotheses that modern research does not support.

Mats Wedin, London and Martin Grube, Graz

Brava Eva ! A stimulating introduction to a topic where discussion was badly needed. The lichen floras of important areas such as the Hymalayas, SE-Asia, and the Andes, are almost unexplored, while better known areas are still a mine of surprises: in Central Siberia I have found myself (Tretiach, *Nord. J. Bot.*, in press), a new species of *Waynea*, a supposedly 'Mediterranean' genus (the Siberian species is covered, of course, by a coat of hairs...), while progress in the exploration of areas such as North America, New Zealand, and Australia, is considerably enlarging the distributional ranges of many 'Old World' species. Such a situation represents a serious constraint for anybody interested in establishing decent distributional patterns for lichens. Should the conclusion be that times are not yet ripe for a sound development of lichen phylogeography? If we agree - somebody certainly does - we should just shut down and wait...but for how long? When von Humboldt started to outline floristic realms, the botanical exploration of the world was not much better. I think there is nothing wrong in trying to outline distributional patterns within Europe only, as this, a small appendix of Asia, is the best explored part the world. Furthermore, we should try to quantify more rigorously floristic similarities among climatically similar, but distant areas: one often reads about 'similar' lichen floras in 'Mediterranean' areas of the world, but most of these statements are based on a few

selected species only. Maybe, when whole floras will be compared, these affinities could prove to be much lower, depending on a few ecologically and geographically broad-ranging species only, for which molecular studies could perhaps demonstrate an unexpected degree of genetic polymorphism (work ahead for molecular people!). Correctly, Eva suggests to avoid following blindly concepts and terminologies derived from the phytogeography of higher plants. Lichens are much more sensitive to micro- than to macro-climatic conditions, and their distributional areas do not always coincide with 'classical' bioclimatic-floristic-geographic regions. Lichenologists should perhaps develop a terminology based on bioclimatic criteria, avoiding the use of *geographic* epithets such as 'Alpine' (a contradiction for *biogeography*?).

Mauro Tretiach, Trieste

Three remarks: 1) Is the evolutionary age of *lichens* the same as that of *lichenization*? This sounds odd to me. Barreno referred to lichens of extreme dry-hot habitats (e.g. Lichinaceae) as presumably old. Now, is there really a wealth of DNA data unmistakably showing that *these* lichens are not old? DNA data from *Parmelia* & Co. cannot falsify the hypothesis of Barreno (a '*hypothesis that modern research does not support*'?). Such hypotheses, on the contrary, could stimulate 'modern researchers': a) to work harder on something interesting, and, b) to wait until they can come with solid, and then most welcome, data. 2) The broad ranges of several cryptogams could be a result of long-distance dispersal, and not of old evolutionary age; if this were true (I think we have some evidence on that), what should we do with lichen phytogeography and plate tectonics? 3) This is just a meditation: Discovering a new species may well be something very special and important, but - after all what was heard here - discovering a new synonym could be even more important...

Louis Le Bois, Venice

Not only the few studies from lichens, but also the phylogenetic data from non-lichenized fungi show that the groups containing lichenized fungi are phylogenetically more advanced than other fungi. For the rest, I must agree with Le Bois: 1) Just look at tracheophytes: here we have taxa which are at least 200 million years old (*Ginkgo biloba*), and others which arose yesterday. Why should lichens be different? Lichen symbiosis could have just been a further possibility of adaptive radiation for several fungi, and might have occurred several times: look at the nice example by Lutzoni (*Proc. Natl. Acad. Sci. USA* 94, 1997), showing that lichenization brought about an increase of evolutionary rates in *Omphalina*. 2) To me, the most dramatic proof of the importance of long-distance dispersal comes from the study of the Antarctic lichen flora. Earlier hypotheses of an old, Gondwanaland persistence of lichens, apparently supported by the absolute dominance of endemic taxa, are crumbling against the discovery that many of these 'endemics' are synonyms of much more widespread, often bipolar species. Linskens et al. (*Polar Biol.* 13, 1993) demonstrated the existence of a considerable airborne flux of spores from Austral origin (see also Engeskjøn & Jørgensen, *Norsk Polarinstitutt Skr.* 185, 1986). Birds were already considered as good distributional carriers by Darwin. If they can propagate the seeds of higher plants, why should they not be able to propagate fungal diaspores, or soredia? (Bailey & James, *Lichenologist* 11, 1979). *Sterna paradisica* migrates every year for 12,000 km from the Arctic to Antarctica. Other birds move through subantarctic islands, and then to South America... However, there is a question left to Le Bois: if long-distance dispersal were the key of the whole story, than we should expect similar lichen floras in all distant areas with similar ecological conditions. And we know that this is not true...

Mauro Tretiach, Trieste

Here are some points of view from a phanerogamist, albeit from one also interested in lichens. Facts distinguishing the biogeography of cryptogams (bryophytes should be also included) from that of spermatophytes are: 1) Cryptogams are poikilohydric, 2) their habitats are much less dependent on macroclimate, 3) dispersal mechanisms are much more effective, and 4) the degree of chorological knowledge is much worse. Additionally, their distribution patterns are influenced, as those of all organisms, by historical factors and by the ecology of the taxa. In biogeography, not only the localities where a organism is present are important, but also -and especially- those where the organism is certainly absent: many distributional maps of lichens show just the areas where lichenologists were active... The points 1), 2) and 3) water down the system of categories (floristic elements) as developed for cormophytes but do not make their use impossible. Points 2) and 3) also show some causes for the much broader distributional ranges of cryptogams, possibly with a course of evolution deviating from that of spermatophyta. Point 4) stresses the great problems in the interpretation of maps and chorological phenomena regarding lichens, such as types of distributional ranges, definition of floristic elements, also using numerical methods, conclusions on evolution, etc. It is true that leaving aside established terminologies may give a feeling of liberation, like the proclamation of a revolution, but any revolutionarist must know the 'ancien régime' very well. There is a monumental work whose reading is highly recommended for those 'only' interested in lichen biogeography: these are the three volumes of Meusel, Jaeger & Weinert: *Chorologie der Zentraleuropäischen Flora* (from which I took the chorological data reported here). In the approach developed by Meusel and his school, the typification of the distributional areas of cormophytes takes into consideration: a) gradients of oceanity-continentality, b) the zonal range of an area, and, c) its altitudinal position. Is a more meaningful grouping scheme conceivable? I assume that this system, with some necessary additions, could be appropriate to deal with lichens as well. A completely new system would also add difficulties in interdisciplinary communication. It is true that sometimes chorological terms worked out for cormophytes lose their meaning when applied to lichens, when taxa of identical taxonomic rank are compared. A fictional '*Lichen alpinus*' could be an arctic-alpine element in the European flora, just as *Erigeron uniflorus*. On a world-wide scale *Lichen alpinus* could become a bipolar orophytic-alpine cosmopolitan taxon, while *Erigeron uniflorus* or, with a wider range, *Gnaphalium supinum*, are arctic-alpine on this wide scale, too. In German we usually distinguish between *alpin*=in the alpine altitudinal belt and *alpisch*=occurring in the Alps. In English, terms such as *alpine* and *alpigenous* could be used. Some amazing likenesses appear when lichen species and higher taxa of cormophytes are compared. The genus *Erigeron* is also an orcal-alpine-cosmopolitan element (holarctic-Andine + eastaustralian, in young high mountain regions), as well as the genus *Gnaphalium s.lat.* (southern and suboceanic-meridional-submeridional mountains), just like *Lichen alpinus*. The family Frankeniaceae shows the same worldwide distribution pattern as some 'Mediterranean' lichens: (austr-austrosubtropical circpoboreosubtropical-submeridional continental 1-3 + lit Africa + W America + Europe-W Asia). The same applies to the group of genera of *Filago* within the Gnaphaliinae (Compositae): *Bombicylaena* (Eurasian + Californian), *Evax*, (Mediterranean + Californian-Arizonian), *Psilocarphus* (Californian + Chile), *Filago* (Eurasian/N African + Californian). Actually, the term 'Mediterranean' (the area around the Mediterranean Sea) is often confused with 'meridional' on a world-wide scale. By the way, such distributional similarities of different taxonomic ranks might prove to be slightly suggestive of their relative evolutionary ages... A final thought: theoretical considerations on the origin and evolution of lichens should not precede a discussion on their biogeography. The sequence, in my opinion, should be reversed: 1) fieldwork, 2) mapping, 3) typification of distribution patterns, 4) inclusion of geoecological factors, and 5) reflections on relationships and evolution of the mapped taxa. Thus, I do not know whether Barreno is right when she says

that much 'exciting work' awaits lichens biogeographers: what lies ahead is hard field survey, mapping, basic taxonomic research, painstaking studies on long-distance-dispersal mechanisms, and on mechanisms of establishment, etc. But, at the end I realize that I am finishing with the same questions as those posed by Eva Barreno! (*I thank A. Beck, München, for critical reading*).

Franz Schuhwerk, Bot. Staatssammlung, München

Recently, I was asked to review the thesis of Birgit Litterski on the lichens of 'Mecklenburg-Vorpommern'. Her approach to phytogeography is interesting, as she follows the system proposed by Meusel and his school. I hope that at least parts of this huge work will be published soon. Further field work is badly needed, but I would not exclude *a priori* any 'theoretical' consideration; after all, science develops through an interplay between inductive and deductive thought. In my opinion, Eva's contribution is a mine of ideas and working hypotheses. The 'substrata' story, in particular (p. 19), should be taken seriously, as it could trigger further interesting research.

P.L. Nimis, Trieste

LICHENOLOGY-ON-LINE

New and interesting Websites

The web site of the **Botanic Garden and Botanical Museum in Berlin-Dahlem** contains information for a general public: a survey of the gardens, opening hours, calendar of activities. Other items of more professional interest are, e.g., a survey of research activities, personal pages of the staff members with publication lists, a list of genus names in current use, a database of Dermateaceae (Fungi), the text of the recent issue of the International Code for Botanical Nomenclature. (H. J. M. Sipman) - <http://www.bgbm.fu-berlin.de/BGBM/default.htm>

Methodology for volunteer/school monitoring projects using lichens - This site is for teachers and students. It provides a basic description of lichens with numerous links to other web sites that give more information on particular topics. It lists monitoring studies completed by schoolchildren in North America and a copy of a draft protocol successfully used by 'Airnet', a consortium of schools. This is organized through the Harris Center for Conservation in New Hampshire and uses several techniques to monitor environmental quality. Any suggestions for cross links or improvements are welcome. (D. Richardson) - <http://www.cciw.ca/eman-temp/research/protocols/lichen/>

Lichen research at the University of Maine at Fort Kent - An introduction to the lichen research program at the University of Maine at Fort Kent (U.S.A.), which focuses on the lichen Order Caliciales and the use of lichens in assessing ecological continuity in the forests of northern New England and Maritime Canada. The site includes several research reports, with extensive bibliographies of lichen literature, a photo gallery of Caliciales found in the region, information on the lichen herbarium and database management program, and a syllabus, with supporting materials, describing our field course in lichenology. (S. Selva) - <http://academic.umfk.maine.edu/lichens/main.htm>

Lichen Herbarium, M.R.D. Seaward, University of Bradford - The private herbaria of M.R.D. Seaward, currently housed in the University of Bradford are being re-catalogued in order to access details of their content onto the web. His lichen collection (12,250 specimens) has already been updated in terms of the collectors (locations, dates and approximate size of collections), geographical scope and taxonomic scope (generic level). (M.R.D. Seaward) - <http://www.brad.ac.uk/acad/envsci/herbarium.htm>

North American Lichen Project - This new web site has basic introductory pages for the general public on lichen biology, lichens and people, lichens and animals, and lichens and the environment. It has a sampler of pictures to introduce the variety of forms and colours in lichens and a gallery of about 100 lichen portraits. It has a page on the upcoming book *Lichens of North America* and a page about sponsorship of the project, grant support, and acknowledgements of the many people who have helped it along. For people with deeper interests, it has a paper on wildlife use of lichens in North America by Steve Sharnoff and R. Rosentreter and a quick review of lichens and invertebrates by Steve. It also has a database on human use of lichens, sorted by taxon and by type of use, compiled by Sylvia Sharnoff. (S. & S. Sharnoff) - <http://www.lichen.com>

Department of General Botany of the University of Kaiserslautern, Germany - This web page presents an introduction into all fields of the working group, such as systematics, phylogeny and taxonomy of green algae, cyanobacteria, fungi (esp. ascomycetes) and lichens, ecology and physiological ecology, tropical ecology, plant-animal-interactions (herbivory), canopy of tropical and temperate forests. A list of all staff members (including phone-numbers, email- and mailing-addresses) and their current projects as well as general introductions into the subjects (with lots of photos) are available. In addition, there is an overview of courses, a short summary of applied methods and techniques and a big list of links to corresponding WWW pages. The pages are available in English and German. (F. Kauff) - <http://www.uni-kl.de/FB-Biologie/AG-Buedel/AG-Buedel.html>

Caloplaca on the Web - Cliff Wetmore has added a new feature to his web page: under the *Caloplaca* data section a new choice has been added that will lead to a list of all *Caloplaca* names with authorities, most of which were verified. There are 26 pages of names but one can select the first letter of a species that one wants to go to; links to other pages are at the bottom of each page. (C. Wetmore) - <http://www.tc.umn.edu/~wetmore>

Checklist of North American Lichens - An updated version of the online cumulative checklist of North American lichens was posted on February, 17, 1998. The URL differs slightly from the first version, only by having a different file extension (.htm instead of .html). (Th. Esslinger) - <http://www.ndsu.nodak.edu/instruct/esslinger/chcklst/chcklst7.htm>

British Lichen Society - The British Lichen Society web site has been updated. More comprehensive links have been provided. Tom Chester's *The Churchyard Lichens Fact Sheet* (a source of much useful information, particularly to beginners) is reproduced in full. Descriptions and prices are given of B.L.S. ties, clothing, mugs, waterproof notebooks and hand lenses. Details are given of all this year's lichenological field meetings and workshops. The full key to U.K. Parmelias is given at <http://www.argonet.co.uk/users/jmgray/cd/key.htm> or via the 'Publications' or 'Parmelia CD' page. (J.M. Gray) - <http://www.argonet.co.uk/users/jmgray/>

Bryologisch-lichenologische Arbeitsgemeinschaft für Mitteleuropa (BLAM) - BLAM has been on Internet since the beginning of 1998 in order to advertise the association and to facilitate the exchange of information among members and international bryologists and lichenologists. The entry is divided into three main parts: 1) general information including a site map, 2) details regarding membership, events organized by the association and publications of BLAM-members (more space will be given to the latter in the future), and 3) a part intended to make available information about our discipline, providing help for classification and distributional data in Central Europe (at the moment in German only). (U. Schwarz) - <http://www.uni-hohenheim.de/~schwarzu/blam/index.html>

Mediterranean lichens on-line - Lichenological activities of the OPTIMA Commission

for Lichens towards a checklist of lichens for the Mediterranean area are flourishing and, by the end of the year, checklists will be available for many more operational geographic units. The existing checklists are being updated, and current versions are available on the WWW as plain text documents. Information on five countries is now databased (Israel, Italy, Morocco, Slovenia, and Turkey), and their floristic tables can be accessed via the WWW. It is now possible to retrieve the joint occurrence of a species in different countries. We are currently working on a taxonomic thesaurus which will aid to uniformize different taxonomic concepts, and on procedures for comparing lichen floras of different geographic units. (M. Grube & P.L. Nimis) - <http://bkfug.kfunigraz.ac.at/~grubem/medlich.htmlx>

Keys on-line

Among the good habits of lichenologists is the distribution of informal determination keys. Usually this concerns preliminary results of monographers working on long-term projects, who want to serve their colleagues at an early stage, before the whole job was finished. Famous examples are the keys M. Hale distributed. His unpublished *Parmotrema* key was one of my most-used tools for many years. Also T. Ahti and O. Vitikainen have distributed such keys, which helped me a lot with my Latin American work. No doubt these keys are also of use for the monographers themselves, because they enable the users to name the common species themselves and select the extraordinary specimens for the monographer. The Internet provides new ways to distribute such keys, and I want to stimulate colleagues to use this opportunity. For this purpose I have made a web page listing all electronically available keys. Address: <http://www.bgbm.fu-berlin.de/bgbm/staff/wiss/Sipman+H/keys/default.htm>. Thus far, it lists 11 'traditional' keys and the Lias Project. The traditional keys deal with regional or world-wide representatives of 15 genera (*Austroblastenia*, *Baeomyces*, *Caloplaca*, *Canomaculina*, *Cladia*, *Cladina*, *Cladonia*, *Dibaeis*, *Hypotrachyna*, *Megaloblastenia*, *Megalospora*, *Parmotrema*, *Phyllobaeis*, *Relicina*, *Rimelia*). If you know of other electronically available keys, or if you have other keys you want to make available, please contact me. I will be pleased to make a link to the key, or to assist in making it available.

H. J. M. Sipman, Berlin

LIAS Project

The DeltaAccess web interface (DAWI) now includes the option of text character output as a new feature (<http://www.botanik.biologie.uni-muenchen.de/botsamml/lias/liasonline.html>). After selection of the button 'Show all Items', a list of all taxa appears. For each taxon, the following characters can be checked: type species, family, (Lecanorales) suborder, order, selected literature, notes, reviser of data set, etc. For technical reasons, the announced inclusion of queries for numerical characters via the DeltaAccessPerl web interface (DAP) has not yet been completed. A new, completely Java-based interface with this feature is expected within the forthcoming months. Insight into the complete contents of the generic data set is now possible via: <http://dbsys.botanik.biologie.uni-muenchen.de/botsamml/lias/liasgencheck.html>. For each genus, the data specifications are visible in a HTML form and can even be changed or completed in the case that errors or shortcomings are found. For updating the data, these checkbox pages can be altered and be posted to the LIAS site by pressing the 'Send item description' button. The updated version of the genus data will be rechecked before being integrated into the database. Those users who have found shortcomings in a genus, but are not real experts for it, preferably should contact the responsible specialist to be found in the field 'Data set revised by' at the bottom of each checkbox form. Many of the genera have not yet been

revised by specialists. Those who are interested to take over the task to revise a couple of genera should please send a short message.

G. Rambold, München

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: US\$ 0.25 per number (3 per volume); vol. 2-8: US\$ 0.50 per number (2 per volume); vol. 9-13: US\$ 1.00 per number (2 per volume); vol. 14-17: US\$ 1.50 per number (2 per volume). Back issues from vol. 20 onward are available for US\$ 1.00 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 to be sent to H. Sipman, Bot. Garten & Bot. Museum, Königin-Luise-Strasse 6-8, D-14191 Berlin, Germany, fax: (+49) 30-83006186, e-mail: hsipman@fub46.zedat.fu-berlin.de.

The front-page illustration

Leightonia pusilla (Hedwig) Garov., drawing by G. Gibelli from S. Garovaglio's *De Lichenibus Endocarpeis mediae Europae, H. E. Galliae, Germaniae, Helvetiae nec non totius Italiae*. Bernardoni, Milano, 1872.

LIST OF SOCIETIES

- Australasia:** Society of Australasian Lichenologists (SAL). Info: Dr. J. A. Elix, Dept. of Chemistry, The Australian National University, GPO Box 4, Canberra ACT 2601, Australia.
- Brazil:** Grupo Brasileiro de Liqueñólogos (GBL). Info: Dr. Marcelo P. Marcelli, Instituto de Botanica, Seção de Micologia e Liqueñologia, Caixa Postal 4005, São Paulo/SP 01061-970, Brazil.
- Central Europe:** Bryologisch-Lichenologische Arbeitsgemeinschaft für Mitteleuropa (BLAM). Info: Dr. Volker John, Pfalzmuseum für Naturkunde, Hermann-Schäfer-Strasse 17, D-67098 Bad Dürkheim, Germany.
- Czech & Slovak Republics:** Bryological and Lichenological Section of the Czech Botanical Society. Info: Dr. J. Liska, Institute of Botany, Academy of Sciences of the Czech Republic, CS-252 43 Pruhonice, Czech Republic.
- Finland:** Lichen Section, Societas Mycologica Fennica. Info: Dr. Teuvo Ahti, Department of Botany, P.O. Box 47, FIN-00014 University of Helsinki, Finland.
- France:** Association Française de Lichénologie (AFL). Info: Dr. Jean-Claude Boissière, Laboratoire de Biologie Végétale, Route de la Tour Denecourt, F-77300 Fontainebleau, France.
- Great Britain:** British Lichen Society (BLS). Info: Secretary, Dr. O.W. Purvis, Botany Department, The Natural History Museum, Cromwell Road, London SW7 5BD, UK.
- Italy:** Società Lichenologica Italiana (SLI). Info: Secretary, Prof. Giovanni Caniglia, Dipartimento di Biologia, Via Trieste 75, I-35123 Padova, Italia.
- Japan:** Lichenological Society of Japan (LSJ). Info: Dr. H. Harada, Natural History Museum and Institute, Chiba (CBM), Aobacho 955-2, Chuo-ku, Chiba 260, Japan.
- Latin America:** Grupo Latinoamericano de Liqueñólogos (GLAL). Info: Dr. Susana Calvelo, Centro Regional Universitario Bariloche, Departamento de Botánica, Universidad Nacional del Comahue 8400- Bariloche RN, Argentina, e-mail: wolf@cab.cnea.edu.ar
- The Netherlands:** Bryologische en Lichenologische Werkgroep der KNNV (BLW). Info: Leo Spier, Kon. Arthurpad 8, NL-3813 HD Amersfoort, The Netherlands.
- Nordic Countries:** Nordisk Lichenologisk Forening (NLF). Info: Ulrik Søjting, Botanical Institute, Dept. of Mycology and Phycology, ø. Farimagsgade 2 D, DK-1353 København K, Denmark.
- North America:** American Bryological and Lichenological Society (ABLS). Info: Dr. Robert S. Egan, Biology Department, University of Nebraska, Omaha, NE 68182-0072, USA.
- North America, East:** Eastern Lichen Network, Info via email: glennmar@shu.edu (Dr. Marian Glenn).
- North America, Northwest:** Northwest Lichen Guild. Info: Dr. Bruce McCune, Dept. of Botany & Plant Pathology, Oregon State University, Cordley Hall 2082, Corvallis, OR 97331-2902, USA.
- Poland:** Lichenological Section of the Polish Botanical Society (Polskie Towarzystwo Botaniczne). Secretary: Dr. W. Faltynowicz, Dept. of Plant Ecology, University of Gdansk, ul. Czołgistow 46, 81-378 Gdynia, Poland.
- Slovakia:** Lichenological Working-Group of the Slovak Botanical Society. Info: Dr. Eva Lisicka, Slovak National Museum, Vajanskeho nabr. 2, 814 36 Bratislava, Slovakia.
- Spain:** Sociedad Española de Liqueñologia (SEL). Info: A. Gomez-Bolea, Dept. de Biologia Vegetal (Botánica), Fac. Biologia, Univ. de Barcelona, Avda. Diagonal 645, E-08071 Barcelona, Spain.
- Sweden:** Svensk Lichenologisk Förening (SLF). Info: Dr. G. Thor, Dept. of Ecology and

Environmental Research, Swedish University of Agricultural Sciences, P.O. Box 7072, S-750 07 Uppsala, Sweden.

Switzerland: Schweizerische Vereinigung für Bryologie und Lichenologie (SVBL). Info: Ph. Clerc, Conservatoire et Jardin botaniques, Case postale 60, CH-1292 Chambesy/GE, Switzerland.

USA, California: California Lichen Society. Info: J. Robertson, 362 Scenic Avenue, Santa Rosa, CA 95407, e-mail: *JKSRR@aol.com*.