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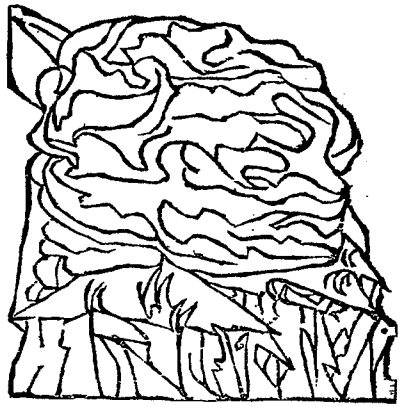

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International Association of Lichenology

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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, Center for Evolutionary and Environmental Biology, Dept. of Botany, The Field Museum of Natural History, Roosvelt Road at Lake Shore Drive, Chicago, IL 60605, 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 (Venezia, May 27-28th 2000)

Saturday 27th May, Pasquali's house in Corte del Capeler (S. Marco) - The session opened at 9.00 am - Those present: M. Jahns (President, member of the Constitution Committee), E. Farkas (Treasurer), F. Lutzoni (Assistant Treasurer), P.L. Nimis (Editor), D. Triebel (Secretary), X. Llimona (member-at-large, Organizer of IAL4).

a) *Announcements by the President* - The President opened the session.

b) *Acharius Medal* - The Secretary reported that there were seven proposals. The Council agreed that all nominees thoroughly deserved the medal, but only three persons received unanimous approval. The Council recommended the renomination of the others for the next Congress. The Vice-President and the members-at-large will be informed and asked for their endorsement of the choices.

c) *Mason Hale Award* - The Secretary reported that there were five candidates. Their curricula were presented and their research discussed. The next recipient of the Award was selected unanimously. The Vice-President and the members-at-large will be informed and asked for their agreement on the choice.

d) *Proposals for IAL5, 2004* - As reported by the Secretary, at the moment there is only one proposal for the venue of the IAL5 Congress. This one proposal was positively commented on, but further proposals were sought. However, further information on local capacities, accomodation, etc. need to be provided before a final decision can be made.

e) *Nominations for Council members* - At the moment there are only two proposals for President 2000-2004, and no formal proposals for other officers have been made. Further nominations from the membership are urgently needed.

f) *Financial affairs* - The Treasurer reported on the financial status of IAL. She recommended that members be asked for a single payment only once for the 4-year-period and to encourage them to pay at the Congress. A number of members have still not paid for the last period. They will be reminded once more and removed from membership if they do not pay by a specified date. The request by one Council member for support from IAL funds to cover the IAL4 Congress fees was approved. The President stated that the IAL should be able to accept donations. One of the Treasurers could work as "donation manager". The Assistant Treasurer suggested that the next Council could consider whether the Treasurer could go on the money market to earn money for the IAL. It was agreed to propose that the membership fee should stay the same for the next period. (Most of the expenses related to this Council meeting were covered by anonymous sources, and not by IAL funds).

g) *Editorial affairs* - The Editor stated that he is willing to assist the next Editor in editorial and technical affairs, if requested. The President and the Editor proposed that the IAL could produce special issues on certain topics, e.g. one on the history of the IAL. The Editor proposed to send bound volumes of back issues of the IAL to relevant institutional libraries.

h) *Other matters* - The Council discussed several alternatives for the election of officers, and also emphasized that the President together with the Secretary and Editor should form a strong team. It was suggested that the Council should not exceed the number of 10 persons including only two or three members-at-large, and that advisory

board and special committees should be elected by the Council. Problems in the transition between the old and new Constitution need to be discussed. The morning session closed at 1.00 pm.

Saturday 27th May, Pasquali's house in Corte del Capeler - The afternoon session opened at 3 pm - Those present: M. Jahns, E. Farkas, F. Lutzoni, P.L. Nimis, D. Triebel, X. Llimona, M. Wedin (member of the Constitution Committee)

a) *Problems related to IAL4* - The Organizer of IAL4 presented a preliminary schedule of the congress and reported on technical and financial matters related to its organization. Meanwhile the organizing committee of IAL4 has accepted 216 summaries of oral and poster presentations. The congress will have 12 subject sections with oral presentations. The posters will be presented in 5 to 6 poster sessions. The Council suggested that each poster session should start with a 10-minute introduction to all posters by the convenor. The IAL Council intends to have a meeting of c. 2 hours before the general meeting. The organizing committee will be asked for an appropriate room, possibly on Monday or Tuesday afternoon. The general meeting of the IAL should not - as originally scheduled – be on the same day as the IAL dinner, but one or two days earlier, in order to provide time for adequate discussion of matters brought before the membership. Participants to IAL4 will be encouraged to pay their IAL fees for the next 4 years in US dollars (40 US$) or pesetas. No other currencies will be accepted. In this context the Council asked the local organizer for technical and personal help in collecting this money in Barcelona.

b) *Towards a new Constitution* - The second draft of a revised Constitution, prepared by the Constitution Committee (*IAL Newsletter*, 32, 2: 61-63), was discussed.

In general: The Editor and the members of the Constitution Committee directed the discussion to the procedures for elections, the number of Council officers including members-at-large, and their duties. It was suggested that a new Constitution should be practicable and not too complicated or lengthy. The former Constitution mainly reflects the British tradition, and this can cause difficulties of interpretation, because of different traditions in other countries. According to information presented by the President and the other member of the Constitution Committee the worldwide registration of an international society like the IAL is not possible. Only local registration in certain countries for consideration for tax reduction is feasible. It was suggested that M. Wedin should report the points under discussion to the other members of the Committee for eventual further amendments to the Constitution.

Nomination of Officers - Difficulties arise when only one - or even no - nominations for a post are received, a not uncommon event within the IAL. After discussing the pro and cons all agreed that Council members should not propose nominations for officers of the next Council but simply gather them from the membership. If no nominations for certain posts were available until a certain date, e.g. six months before the next IAL Congress, the elected members-at-large could form a nomination committee that will request nominations. If they are unsuccessful, nominations could be allowed from the floor at the general meeting. The President and the Editor emphasized that a society such as IAL should have a single elected body with clear limitations of rights and no independent bodies which might compete.

Composition of the Council - All agreed that the Council should not include too many officers (no more than 10), but could invite persons to give advice on certain matters. A

permanent advisory board could be helpful to link the international association with the local lichenological societies and to improve communication. The past-President should not be automatically an officer of the next Council as he/she may have too much influence. The role of the Auditor was discussed. It was agreed that he/she should not be a member of Council but would be nominated and elected by the membership. The Auditor's role is to report to the next General Meeting on the financial affairs of the IAL.

Council meetings - Physical meetings are not easy to organize in an international association. Therefore e-mail contacts should be improved and online-discussion groups should be established among the officers. Decisions could be taken during "online-meetings", provided that all officers have been contacted, and that at least a given quorum has expressed a vote.

Newsletter and awards - The *Newsletter* as well as the already existing awards should be explicitly cited in the new Constitution. A certain freedom should be left to the Editor about the content and style of the *Newsletter*. The Constitution should give the IAL the possibility to establish additional awards in future.

Transition between the old and new Constitution - Problems might arise if the next general meeting does not accept the newly proposed Constitution. The old Constitution would then continue to be valid, but some articles at least might require modification. This is why it is very important to find a broadly acceptable proposal for a new Constitution which must be published in the next issue of the *Newsletter*.

Voting systems - Several methods of voting were discussed. It was agreed that balloting by mail was unacceptable. Furthermore, nominees to the presidency should not be allowed to nominate officers with whom they would like to work as a team: it was felt that this proposal is not likely to be approved by the IAL membership, although it would increase the efficiency of the Council. IAL members at the Congress will be provided with the list of nominees for the new officers together with the registration package. This voting formular will have one box for each person, with members marking their approved candidate in the appropriate box. Further nominations from the floor could be added manually at the beginning of the general meeting, and an overhead slide should explain the procedure.

Financial affairs - Both Treasurers stated that donations should be held in the same account as the fees, but that they should be kept separate in the bookkeeping. Members from individual countries should decide whether they would like to have additional "local" accounts. The value of the Mason Hale Award (currently US$ 500) should be left open to modification. The afternoon session closed at 6.00 pm.

Sunday 28th May, Pasquali's house in Corte del Capeler - The session opened at 1.00 pm - Those present: M. Jahns, F. Lutzoni, P.L. Nimis, D. Triebel, M. Wedin.

Discussion and optimization of an emended proposal for the Constitution - The new suggestions which arose on Saturday were entered into the computer. Mats Wedin was invited to discuss the new inputs with the Constitution Committee which is expected to present a final proposal to the membership in time to have it published in the next issue of the *Newsletter* (deadline: July 1st 2000). The session closed at 2.30 pm.

The Secretary, Dagmar Triebel

Treasurer's Report

A more detailed financial report is necessary before IAL4, giving a statement of the IAL accounts between 1996 and 2000. This report will be presented during the General Meeeting in Barcelona:

Statement of IAL accounts [US$] (7 September 1996 - 20 June 2000)

	receipts	expenditures
USA account 1992-96	2,995	
membership fees	12,470	
donations*	1,945	
Total:	17,410	
Acharius Medals 1996		-68
Mason Hale Award 1996		-500
banking costs		-401
mailing costs (7 ILN issues Dec 1996 - Dec 1999)		-2,826
IAL4 funds		-4,350
Total:		-8,145
Balance	9,265	
Planned costs:		
mailing (2 ILN issues of 2000)		-1,200
Mason Hale Award 2000		-500
Acharius Medals 2000		-300
various other costs		-500

* originates mainly from the Cambridge University Press (4% royalty on each copy sold of *Lichen Biology* by T. H. Nash III).

According to a decision of Council, in order to support participants of IAL4 (incl. the Treasurer of the IAL) a transfer of US$ 3,000 has been arranged from the USA account by the Deputy Treasurer already at the end of last year, and US$ 1,350 were sent to the oganizers from the Hungarian account a few days ago. Further costs related to IAL4 are those for awards. The mailing costs of ILN 32(2) and 33 (1) are c. US$ 1,000. Those of ILN 33(2) must also be planned. The present balance of the two IAL accounts is US$ 9,265. This amount allows us to cover all the coming costs and gives us a possibility for publishing and mailing the International Lichenological Newsletter even without the donation from the University of Trieste in the coming years.

Former members who have received issues of the Newsletter during the last years, are kindly requested to pay the membership fee of US$ 40 for 1997-2000. Members who joined the Association at any time during 1997 or 1998, have already received all issues from 1997 (Vol.30, nrs1, 2, 1997; Vol. 31, nrs 1, 2, 1998; Vol. 32, nrs 1, 2, 1999). Please, let me know if you have not received them! Lichenologists who have decided to join the Association and chosen to pay in full (US$ 40 for the entire 4 years period - 1997-2000), receive also the back issues. If they choose becoming a member only from 1 January 1999, the fee is of US$ 20 for 1999-2000. New members should contact the Treasurer to be registered. We need your name, institution, street, town, country, fax, e-mail and

telephone. Please send any changes as soon as possible. This time a report of payment is sent only to those members who have not paid completely until 2000. The payment of other members is registered until December 31th 2000. Submit all unpaid membership fee now or during IAL4! In Barcelona a new membership period (2001-2004) will start. Membership will be valid until December 2004.

The following options are available now:

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 for 1997-2000 (or 1999-2000)" The S.W.I.F.T. code fo the bank is: MKKB-HU-HB - 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, to pay all bank fees. Please, inform me directly if a bank transfer has been taken place!

2) IAL dues can be also paid to: Francois 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.

Finally, I would like to express my gratitude to Mrs Marika Huber (Dept. of International Relations, Hungarian Academy of Sciences, Budapest) for managing the IAL account in Hungary, to F. Lutzoni, Deputy Treasurer. for handling the IAL account in the United States and to Julianna Forro (Inst. of Ecology and Botany, Hungarian Academy of Sciences, Vacratot) for her kind assistance in mailing the newletters.

The Treasurer, E. Farkas, Budapest/Vacratot

Nominations for the next Council

By June, 29th the IAL Secretary received the following proposals for Council officers 2000-2004 (deadline, July 1st). All candidates accepted the nomination.

President: P. DePriest, P.L. Nimis.
Vice-President: I. Brodo
Secretary: E. Farkas, S. Ott, L. Sancho.
Treasurer: F. Lutzoni.
Assistant Treasurer: E. Farkas, C. Scheidegger.
Editor: M. Grube.
Members-at-large: D. Armaleo, J. Elix, R. Honegger, R. Lücking, T. Lumbsch, G. Kantvilas, T. Randlane, M. Zhurbenko.

If you know appropriate candidates for the organization of IAL5 in 2004 please inform the Secretary. We already have one serious candidate: Tartu, Estland, where is a very active lichenological group with T. Randlane as the head.

The Secretary, Dagmar Triebel

A candidate for IAL 5

The lichenological group of the Institute of Botany & Ecology, University of Tartu is willing to be a candidate for organizing IAL5 in 2004. - Tartu is situated in the south-

eastern part of the Republic of Estonia, on the banks of the River Emajõgi. With 110,000 residents, Tartu is Estonia's second largest city. It is above all a university-town, a national education and research center. Tartu is, in terms of written mention (in 1030), the oldest city in the Baltic States. Because of its favorable position, Tartu developed into a prominent commercial center and Hanseatic City in the Middle Ages. In the 17th century Tartu became one of Sweden's administrative centers in the Baltic Provinces. In 1632, during the reign of Gustavus II Adolphus, *Academia Dorpatensis*, the University of Tartu was established as the second university in the Swedish Empire. After the wars and great fires in the 18th century, Tartu became a part of the Russian Empire. Soon afterwards, the reconstruction of Tartu began. Most of the sites of architectural importance are in the classical style. As a result, Tartu is known as the Athens on the River Emajõgi. In 1802 the University of Tartu was re-opened. The University's *belle époque* was in the 19th century. World-renowned scholars such as the founder of embryology K.E. v. Baer, the founder of physical chemistry W. Ostwald, physicists H.F.E. Lenz, M. H. Jacobi and others studied and worked at the University. Since then, Tartu has been a city of students and science. In 2000, the University has 10 faculties and 3 colleges with c. 70 departments, institutes and clinics where almost 10,000 under- and post-graduates are involved. More information about the Institute of Botany and Ecology of the University of Tartu and Estonian lichenology can be obtained from the home pages (*http://moritz.botany.ut.ee*, and *http://www.ut.ee/lichens/*). Today the lichenological group in this institute consists of seven persons; our lichen herbarium includes more than 65,000 specimens and we publish a yearly journal, *Folia Cryptogamica Estonica*. We would like to invite all the lichenologists to come to Tartu for IAL 5 in 2004.

T. Randlane, Tartu

New members

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Proposal for a new IAL Constitution (final version, by the Constitution Committee)

§ 1. Name - The name of the Association is the International Association for Lichenology (IAL).

§ 2. Goals - The purpose of the IAL is to promote the understanding of lichens and lichenology world-wide. To achieve this, the IAL shall: a) encourage the study of lichens, b) advocate lichenological interests in the international arena, c) stimulate communication and discussion among those interested in lichens, d) organise symposia, field meetings, conferences, etc., and e) support the conservation of lichens.

§ 3. Membership - Members of the IAL are those, whose dues have been paid. Any member who is more than two years in arrears in payment may be suspended by the Council.

§ 4. Power to raise Money -The IAL exists only for non-profit status. It has the power to raise money by dues or other means as approved by the Council, but only for scientific purposes, awards and the administration of the Society.

§ 5. Dues - Membership dues will be determined at the general meeting of the IAL, upon advice of the Council.

§ 6. Officers, Auditors and Nominating Committee - The elected Officers of the IAL are a President, a Vice-President, a Secretary, a Treasurer, an Assistant Treasurer, an Editor, the organiser of the next IAL Congress, and three Council members-at-large. These officers form the Council of the IAL. The Auditor and Vice-Auditor are elected non-Council members. The Nominating Committee is composed of three elected non-Council members, and they elect a secretary among themselves. The term for Officers, Auditors and Nominating Committee is four years. The maximum period for any Council Officer, Auditor and Nominating Committee member is two consecutive terms. Council Officers, with the sole exception of the Editor, cannot serve more than one consecutive term in the same position.

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

8. Duties of Officers and Auditor - The Council administers the affairs and funds of IAL and shall meet or in other ways communicate as decided by the President or at the request by Council Officers. The Council must establish an Advisory Board including a representative selection of lichenologists worldwide, with special attention to local societies, which shall assist the Council in the transfer and dissemination of information. The Council may designate Committees that shall manage topics of particular relevance for lichenology. The Advisory Board and the Committees will last until the next Council takes over. The President, or in his absence the Vice-President, or any member of Council designed by the President, shall preside at all meetings of IAL and the Council. The Secretary shall keep minutes of meetings, and shall conduct correspondence as requested by Council. The Treasurer, or in his absence the Assistant Treasurer, shall keep an account of all receipts and expenditures and have a statement presented at general meetings and as requested by Council. The Assistant Treasurer shall assist the Treasurer as requested by the Council. The Editor shall prepare the International Lichenological Newsletter, whose content and format shall be at their discretion subject to review and recommendation of Council. The Council may temporarily fill positions vacated between elections. If less than seven elected members remain, a new Council must be elected at an additional general meeting. To be valid, decisions of Council - held by a majority vote - require that all Council members have been informed, and that at least six of them participated. The Auditor, assisted by the Vice-Auditor, will review the financial records of the IAL and present a report to the general meeting. In his absence, the Vice-Auditor will act as Auditor. The Nominating Committee is responsible for presenting a list of nominations to the general meeting.

§ 9. General Meetings - The IAL shall hold its general meeting at the IAL Congress, a major international congress covering all aspects of lichenology, to be organised every fourth year. Announcements of additional meetings must reach the membership at least six months in advance. Any member can address topics for discussion to the Secretary at least four months prior to the general meeting, so that these will be disseminated to the Membership before the meeting. Additions to the agenda require a two-thirds majority of those present at the general meeting. Decisions will be taken by a majority vote. To be valid, a general meeting requires the participation of at least 10% of the membership.

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

§11. Change of Constitutional Rules - Changes in these rules may be made only upon approval by not less than two-thirds of the Members present at the general meeting. Proposals of changes must be sent to Secretary at least four months prior to the general meeting, so that they will be disseminated to the Membership before the meeting. No rule change shall be allowed which will change the non-profit status of the IAL.

§12. Dissolution of the IAL - A motion to dissolve the IAL must be approved by at least two-thirds of the whole Membership. If the IAL is dissolved, any funds remaining after all outstanding liabilities are discharged shall be used for scientific purposes in the field of lichenology as agreed by the last Council.

The Constitution Committee of IAL

NEWS

IAL 4: Progress and Problems in Lichenology at the Turn of the Millennium (Barcelona, September 3rd-8th 2000)

The international congress of the IAL is the major scientific event in our Society. Detailed and continuously updated information is available at: http://www.bio.ub.es/. *What*

follows is the preliminary program of oral presentations in the 12 sessions of the congress, as it was available at the end of June. I placed it here for the many IAL members who will not be there, and especially for those who have no access to the Internet. Browsing through the titles, they can hopefully get a glimpse of the many paths chosen by Lichenology at the start of the Millennium. I feel somehow guilty of having disregarded - for obvious reasons of space - the hundreds of announced posters: the portrait of modern Lichenology would have been much clearer.

The Editor

Session 1. ***Systematics of the Mycobiont*** (Conveners: A. Tehler, J.M. Egea) - *Caloplaca* studies - some sorediate species (Wetmore C.). Systematic studies of the *Lecanora symmicta* complex in New England and adjacent Canada (LaGreca S., Greene D., Lumbsch H.T.). Taxonomic studies on the lichen genus *Siphula* (Kantvilas G.). Evolutionary divergence and convergence in phenotype characters of the lichen family Gomphillaceae: a phylogenetic approach (Lücking R.). Reconstruction of lichen symbiosis evolution based on a nrDNA phylogenetic synthesis of the mycobiont (Lutzoni F., Pagel M., Reeb V.). Use of different gene regions in phylogenetic studies of lichenized fungi (Myllys L., Lohtander K., Stenroos S., Tehler A.). Phylogenetic relationships among sections of *Cladonia* and *Cladina* (DePriest P.T., Piercey-Normore M., Sikaroodi M., Kärkkäinen K., Oksanen I., Yahr R., Ahti T.). Molecular phylogenetic reassessment of the generic boundary between the genera *Caloplaca* and *Xanthoria* (Søchting U., Lutzoni F.). Phylogeny of Lichinales: a reassessment based on classical and molecular data (Schultz M., Büdel B.). Evolution, phylogeny and morphological synapomorphies of some Calicioid lichen families (Wedin M.).

Session 2. ***Photobionts*** (Conv.: T. Friedl, M. Hernandez-Mariné) - Where does the lichen photobiont come from? I. Photobionts of lichenicolous lichens (Beck A). Distribution and colonization patterns of photobionts and lichens in the Antarctic (Romeike J., Helms G., Friedl T., Ott S.). Genetical diversity of lichen phycobionts in a semiarid habitat, SE Iberian Peninsula (Souza-Egipsy V., Friedl T., Ascaso C.). Coevolution of symbiotic associations within peltigerous lichens (Peltigerineae, Ascomycota) (Miadlikowska J., Lutzoni F.). Symbiont choice and manipulation by a lichen fungus for maximal carbon acquisition (Hyvärinen M., Härdling R., Tuomi J.).

Session 3. ***Morphology and Structure*** (Conv. A. Bellemère, C. Ascaso) - Morphology and differentation of selected aposymbiotically grown mycobionts and their secondary chemistry (Stocker-Wörgötter E.). Hydrophilic and hydrophobic cell wall layers and their functions in the symbiotic phenotype of lichen-forming Ascomycetes (Honegger R., Scherrer S., Haisch A., Hugelshofer G.). Hydrophobins in *Dictyonema glabratum*: the water repellent coat of the apoplastic continuum (Trembley M.L., Ringli C., Honegger R.). Thallus-substratum interface of silicicolous lichens occurring on carbonatic rocks of the Mediterranean region (Salvadori O., Appolonia L., Tretiach M.). Form-building in the Cladoniaceae (Hammer S.). Asci and ascospores in various Lecanorales: TEM data (Bellemère A.). Water distribution within lichen soil crusts (Souza-Egipsy V., Ascaso C., Sancho L.G.). Homology assessment of the boundary tissue in fruiting bodies of the lichen family Sphaerophoraceae (Döring H., Wedin M.).

Session 4. ***Ecology, Ecophysiology and Lichen Physiology*** (Conv.: L. Kappen, L.G. Sancho) - The ecophysiological effect of high levels of nitrogen on nitrophytic and non-nitrophytic lichen species (Gaio-Oliveira G., Branquinho C., Máguas C., Martins-Louçao

A.). The relevance of nutrient availability for lichen productivity in the maritime Antarctic (Valladares F., Sancho L.G.). Effect of ammonia on the physiology of lichens (Vidergar-Gorjup N., Pfanz H., Batic F.). The potential role of cyanolichens in the maintenance of native New Zealand ecosystems (Thomas M., Ryan D., Galloway D.). The influence of substrate and growth form on the accumulation of elements by lichens (St. Clair L., St. Clair S., Mangelson N., Weber D., Eggett D.). Effects of H_2S on CO_2 gas exchanges and growth rates of the epiphytic lichen *Parmelia sulcata* Taylor (Tretiach M., Baruffo L.). Evidences for ethanolic fermentation in lichens during periods of high thallus water content (Wilske B., Holzinger R., Kesselmeier J.). Effects of snow cover on lichen vegetation in the maritime Antarctic (Winkler J.B., Kappen L.). Spatial and temporal variation in water-related photosynthetic activity in lichens (Schroeter B.). Dynamic dehydration and photosynthesis in semi-arid lichens. Discriminative location of the water into the lichen thallus (Del-Prado R., Sancho L.G., Ascaso C.). Responses of antioxidants and plastid pigments to desiccation and rehydration of the lichen *Cladonia vulcani* compared to the reactions of its isolated photobiont and mycobiont (Kranner I., Zorn M., Yoshimura I.). Plastid pigments during desiccation and rehydration in the desert lichen *Ramalina maciformis* (Zorn M., Grill D., Kranner I.). Photosymbiodemes: factors contributing to the occurrence of 'well-balanced' lichens (Green A., Schlensog M., Winkler J.B., Sancho L.G., Schroeter B.). Lichens and ultraviolet radiation: a field test for adaptations (Glenn M., Orsi E.V.). Rhizocarpic acid, a photoprotector lichen metabolite (Quilhot W., Rubio C., Fernández E., Hidalgo M.E.). Does photoinhibition affect the productivity of Antarctic mosses and lichens? (Shlensog M., Schroeter B.). How can lichens survive in the understorey of tropical lowland rain forests? (Lakatos M., Rascher U, Büdel B.). Light and nitrogen use efficiencies of lichen growth (Pamqvist K., Sundberg B.). Characteristics of secondary products from isolated lichen mycobionts (Hamada N., Tanahashi T.).

Session 5. ***Lichen diversity and biogeography. Mediterranean and xerophilous lichens*** (Conv.: P.L. Nimis, E. Barreno) - Symbiotic (lichenised) and free-living fungi on desert rocks: propagation strategies and similarity of vegetative life-forms (Gorbushina A.A., Galun M., Golubkova N.S.). Interaction and colonization strategies of lichens of the gravel-Alvar (Gotland) (De Vera J.P., Schaper T., Ott S.). The phytogeography of the genus *Peltigera* Willd.: a quantitative analysis (Martínez I., Burgaz A.R., Vitikainen O., Escudero A.). Biogeographical research on European species of selected lichen genera (Litterski B., Otte V.). Bioclimatological influences on the floristic composition of epiphytic lichen communities on *Quercus suber* L. in Spain (Fos S., Calatayud A., Guera A., Barreno E.). Lichens from the Pacific Northwest of North America associated with a Mediterranean climate (Glew K.A.,Tønsberg T.). The distribution patterns of some *Usnea* species occurring in the Macaronesian area (Clerc Ph.). Floristic interactions between *Letharia vulpina* communities of the *Cedrus atlantica* (Morocco) and *Larix decidua* (NE Italy) woods (Ravera S., Massari G.). The genera *Koerberia*, *Leptochidium*, *Massalongia* and *Polychidium* (Peltigerales *s.l.*) in the Iberian Peninsula (Burgaz A., Martínez I.). Diversity of lichens in the Central Negev, Israel (Insarova I.). Lichen diversity in forested ecosystems in the Baltic area (Martin J., Martin L.). Lichens of the California Channel Islands (Bratt C.).

Session 6. ***Lichen-dominated communities*** (Conv.: C. Roux, X. Llimona) - Twenty years' synusial changes in a lichen-rich dry sand grassland vegetation (Daniëls F., Biermann R.). Relationship between species richness, biomass and habitat in terricolous

lichen vegetation of different climatic regions (Bueltmann H., Daniëls F.). Parmelioid lichen biodiversity and distribution ecology in Taiwan (Lai M. J.). Life-form diversity of lichenized fungi in an Amazon lowland rainforest (Komposch H., Hafellner J.).

Session 7. *Molecular approach to lichen phylogeny* (Conv.: M. Wedin, A. Crespo) - Molecular phylogeny in Lecanoraceae, with special emphasis on the genera *Lecanora s. lat.* and *Rhizoplaca* (Arup U., Grube M.). Phylogeny of *Dermatocarpon* based on its sequences with a special emphasis on interrelationships of the *D. miniatum*-complex (Heidmarsson S.). The genus *Physcia* (Physciaceae): phylogeny inferred from ITS and intron sequences (Lohtander K., Myllys L., Moberg R., Källersjö M., Tehler A.). Phylogenetic studies on the genus *Buellia* (Baloch M., Trinkaus U., Mayrhofer H., Grube M.). The phylogenetic relationship of the New Zealand Lobariaceae based on its 5.8s molecular sequence data.(Thomas M., Ryan B., Galloway D.). A phylogenetic study of *Acarospora* and Acarosporaceae (lichen-forming Ascomycetes) and their position within the Ascomycetes (Reeb V., Roux C., Lutzoni F.). A molecular phylogeny of the Biatoraceae (Ekman S.). Comparison of morphological and molecular phylogenies in Agyriaceae (Schmitt I., Lumbsch H.T.). The reverse-splicing model of intron origin in lichen-fungi (Bhattacharya D., Lutzoni F., Reeb,V., Simon D., Fernandez F.). Molecular evidence for the interpretation of the ascomata in Coccotremataceae as perithecioid apothecia (Messuti M.I., Schmitt I, Lumbsch H.T.). Correlating the phylogeny of *Biatora* to vegetation history: the possibility of calibrating a molecular clock in lichens. (Printzen C.). Phylogenetic analyses of the fungi based on large rDNA data sets (Tehler A., Farris J. S., Lipscomb D. L., Källersjö M.).

Session 8. *Lichenicolous fungi* (Conv.: J. Hafellner, P. Navarro Rosinés) - Host-specificity and co-evolution in lichenicolous fungi (Diederich P.). Infection mechanisms of lichenicolous fungi (De los Rios M., Ascaso C., Grube M.). Phylogenetic position of selected lichenicolous fungi: *Hobsonia*, *Illosporium* and *Marchandiomyces* (Sikaroodi M., Lawrey J. D., DePriest P.T.).

Session 9. *Bioindication by lichens of the stability and stress in ecosystems* (Conv.: B.J. Coppins, A. Gómez-Bolea) - The use of plant bioindicators (lichens and tobacco plants) in the detection of air pollution (NO_x,0_3) in urban areas. (Asta J., Gombert S., Khalil K., Rolley F.). Populations of *Hypogymnia physodes* (L.) Nyl. under stress conditions: their structure and functioning (Mikhailova I.). The use of epiphytic lichens for monitoring polycyclic aromatic hydrocarbons (Jeran Z., Leskovšek H.). Factors affecting the biodiversity of epiphytic lichens in Tyrrhenian and Alpine areas of Italy (Loppi S., Giordani P., Brunialti G., Isocrono D., Piervittori R.). Development of a hemeroby scale for oak forests in Sardinia (Italy) based on changes in the epiphytic lichen flora (Zedda L.). Mapping and analysis of the distribution patterns of lichens under application of statistical and geostatistical methods (Weber B., Büdel B.).

Session 10. *Storage and retrieval of lichen data: publications, herbaria, checklists, floras* (Conv.: M. Grube, N.L. Hladun) - Herbarium databases: creation and maintenance (Schoeninger R.). Lichenological collections and relevant databases in the University of Tartu, Estonia (Saag A., Randlane T.). Checklist, phytogeography and interactive database of Argentinian lichens (Calvelo S, Liberatore S.). A checklist of the lichens of Xinjiang (Abbas A., Miji, H., Tumur A., Wu, J.). Predictive distributional maps of Italian lichens (Nimis, P.L., Martellos S.). The foliicolous lichen homepage: foliicolous lichens on-line (Lücking R.). The mapping of terricolous lichens of Switzerland (Vust M.).

Session 11. *Strategies for the sustainable management of lichen biodiversity* (Conv.: R. Türk, A.R. Burgaz) - The biodiversity of lichens in mountains: research of management lichenic tool (Asta J., Collin G.). Juvenile development and diaspore survival in the threatened epiphytic lichen species *Sticta fuliginosa*, *Leptogium saturninum* and *Menegazzia terebrata*: conclusions for *in situ* conservation (Zoller S., Frey B., Scheidegger Ch.). Sustainable management for maintaining or re-establishing terrestrial lichen vegetation in coastal and inland dunes of the Netherlands (Ketner-Oostra R., Sykora K.V.).

Session 12. *Populations and thallus individuality* (Conv.: D. Hawksworth, O.F. Cubero) - Use of DNA fingerprinting to investigate thallus individuality and population variation within *Graphis scripta*, *Ochrolechia parella* and *Xanthoria elegans* (Dyer P.S., Murtagh G.J., Crittenden P.D.). Biogeography of the lichen forming fungi *Parmelia saxatilis* inferred by molecular data (its rDNA) (Crespo A., Molina M.C., Sancho L. G., Schroeter B.). Are lichens only fungi with a special form of nutrition? (Ott S., Ellersiek U., Krieg, T., Lisowsky T.). Inter- and intraspecific variation of homologous hydrophobin (H1) gene sequences among *Xanthoria* spp. (lichen-forming Ascomycetes) (Scherrer S., Honegger R.).

Personalia

Ted Ahti (Helsinki) has worked in Washington (US) and Arizona (ASU) and is going to do field work in Newfoundland in July-August. Other trips include visits to Russian Karelia and Xinjiang, China. His *Flora Neotropica* monograph on Cladoniaeae was issued on March 3rd 2000.

Gerhard Follmann (Köln) took advantage of being in southern Latin America for the GLAL-4 meeting at Bariloche, Argentina, to visit southern Chile in December 1999. Apart from collecting some critical taxa formerly analysed with unsatisfactory results, the main purpose was to pinpoint the present southern distributional limit of Roccellaceae (Arthoniales) along the Pacific Coast. Astonishingly, this appears to be displaced northwards. Certain Austral species like *Roccella gayana* could not be rediscovered at localities where they had been found up to the 1960s. The reasons for such a shift are still unclear.

Ming-Jou Lai (Taipei & Taichung, Taiwan) completed a report on the Taiwanese parmelioid genera and species (altogether 19 genera and 99 species) co-authored with Dr. **Syo Kurokawa**, which will be published soon. A government grant was also received for preparing a macrolichen flora of Taiwan. So far, Cladoniaceae, Lobariaceae, Stereocaulaceae and cetrarioid and parmelioid genera as well as *Hypogymnia* have been completed (in Chinese). For the past few years he has been working on a book entitled *Vegetation Landscape of Taiwan,* describing the complicated vegetation, zonation and floristics of the country. Another new book, *Illustrated Bryoflora of China*, the result of more than a decade of work with Prof. **Kao Chien** of the Academia Sinica, will be printed this Spring in Taipei. Prof. Lai is glad to be rid of administrative tasks and is now able to contribute more to lichenology. He is honored to be among the founders of the Finnish-Chinese Botanical Foundation.

Olga Katenina (Ph.D. student with Prof. **Nina Golubkova**, Russia) and **Frank Kauff** (Ph.D. student with Prof. **Burkhard Büdel**, Germany) visited **François Lutzoni**'s lab

at the Field Museum in Chicago for more than two months. Olga conducted a detailed anatomical and morphological study of *Ramalina* for a revised lichen flora of Russia. Frank conducted extensive molecular systematic work on the Gyalectales.

Mark Merwin (The Evergreen State College Lab I, 3064, Olympia, WA 98505 USA) is working with epiphytic lichens and bryophytes in a montane forest in Costa Rica. He is interested in articles investigating the diversity of lichens in primary and secondary forests, especially epiphytes, in tropical and subtropical habitats. If you have done this type of work in the tropics or temperate regions, or know of references, please contact him: *merwinm@elwha.evergreen.edu*

Christian Printzen has taken up a two-year postdoctoral fellowship at the University of Bergen from May 1st, 2000. He will work mainly on the phytogeography of lichens displaying a European-North American disjunct distribution. At the same department, **Heidi Lie Andersen** has recently started a three-year Ph.D. project dealing with the phylogeny of the Micareaceae, mainly using DNA sequence data. Master's student **Fiona Mohr** is continuing her studies on the systematics of marine *Pyrenocollema*, using both morphological and molecular data. Her thesis is expected to be finished during the coming winter. **Stefan Ekman**, the supervisor of Heidi and Fiona, was appointed to a permanent position at the University of Bergen this spring. He is continuing his molecular and morphological studies of systematics and phylogeny in the Biatoraceae *s. lat.*

Gerhard Rambold moved with his working group from the Institut für Systematische Botanik der Universität München to the Universität Bayreuth, where he has a permanent position (see Address Changes section).

Harrie Sipman (Berlin) enjoys increasing cooperation with students. **Roland Welz** and **Jeanette Bohnke** are participating in his studies of the lichen flora of El Salvador. Roland has just finished his MSc thesis on a comparison of the lichen flora of three primary forest tree species in the National Park El Imposible, using rope climbing, and Jeanette is studying the Parmeliaceae flora of the same area. Investigations on Sardinia include **Luciana Zedda**'s almost completed PhD dissertation on the lichen flora on *Quercus*, while **Nicole Nöske**, a student at Göttingen University, has completed a MSc thesis on an analysis of the lichen flora on granite in the Monte Limbara area. A very pleasant lichen excursion to the lichen paradises of Norway with these students showed them how luxuriant lichens can be in boreal regions and included an adventurous note when the ferry boat caught fire! Harrie's own activities include cooperation with the Instituto Nacional de Biodiversidad in Santo Domingo, Costa Rica, where he is involved in training **Loengrin Umana** and a staff of five parataxonomists of this institute. They are engaged on lichen (and other fungi) inventories in five National Parks. **Tom Nash** visited him for one week in March to work on the revision of neotropical *Hypotrachyna*, a joint project with Jack Elix, which is now well under way now.

Adriano Alfonso Spielmann (UNISC - Lab. de Botânica, Av. Independência, 2293, CP 188, CEP 96815-900, Santa Cruz do Sul, RS, Brasil) is a young Brazilian lichenologist working on material from Southern Brazil and Antarctica. Unfortunately, he does not have access to most literature on lichens. He would greatly appreciate of receiving a copy of your papers as well as of any other publications of which you may have extra copies.

Amanda Waterfield (London) took over as Secretary of the British Lichen Society last year. Her e-mail address is *bls@nhm.ac.uk*, phone +44 (0)20 7942 5617 (P. Wolseley), fax. +44 (0)20 7942 5529. You can contact her by writing to: The Secretary, c/o Dept. of Botany, Natural History Museum, London SW75 BD, UK.

Birgit Werner (Köln) successfully defended her PhD thesis entitled *Studies on the evolution and speciation of fruticose Roccellaceae (Arthoniales) on the Tropical Pacific Galapagos Islands* on February 22nd, 2000, at the Botanical Institute of the University of Köln, Germany. She was guided by Gerhard Follmann. Currently, we know more well-founded *Roccella* taxa from Darwin's "Enchanted Islands" (12) than from the whole South American Continent including the Caribbean, Juan Fernandez etc. (9). Birgit will continue working with Follmann's lichenological group at the above-mentioned institution, concentrating mainly to curatorial work.

New Literature

SUPPAN U., PRÜGGER J. & MAYHROFER H., 2000 - *Catalogue of the lichenized and lichenicolous fungi of Slovenia* - Bibliotheca Lichenologica, 76, 216 pp. Soft cover. Price: 110 DM.

RANDLANE T & SAAG A. (eds.), 2000 - *Second checklist of lichenized, lichenicolous and allied fungi of Estonia.* - Folia Cryptogamica Estonica, vol. 35, 132 pp. Soft cover. ISSN 1406-2070, ISBN 9985-50-266-3. Price: unknown. Available from: Estonian Naturalists' Society, 2 Struve Str., 51003 Tartu, Estonia.

VEZDA A. & LISKA J., 1999 - *Katalog Lišejniku Ceské Republiky.* Institute of Botany, Academy of Sciences of the Czech Republic, Pruhonice, 283 pp. Soft cover. ISBN 80-86188-03-5. Price: unknown. Available from: Institute of Botany, Academy of Sciences of the Czech Republic, CZ- 25243 Pruhonice 1, Czech Republic.

DIEDERICH P. & SÉRUSIAUX E. (in collaboration with P.P.G. van den Boom and M. Brand), 2000 - *The Lichens and Lichenicolous Fungi of Belgium and Luxembourg. An Annotated Checklist.* - Musée National d' Histoire Naturelle, Luxembourg. Soft cover, colour pictures, 207 pp. ISBN 2- 919877-00-3. Price: 25 Euro+postage and packing (5 Euro for Europe, 8 Euro for extra-European countries). More information and order form at: *www.mnhn.lu/recherche/lichens*

In a future history of lichenology, the end of the XXth century - which is witnessing the first important steps of molecular systematics - is likely to be designated as "the era of checklists". Almost everywhere in the world we see converging efforts to synthesize the enormous amount of floristic-taxonomic data assembled after the Second World War, and in earlier times. Many more checklists were published during the last few years, some in paper-form, some only on the Internet, and this is obviously good. Paradoxically, at least to me, this is also a source of concern: whenever such a process occurred in the history of our discipline, it almost always marked the end of an enthusiastic progressive era, and the beginning of decades of decadence. However, let's think positive: history does not always repeat herself! Our four checklists summarize what we hitherto know about the lichens - and sometimes lichenicolous fungi - of Slovenia (820 infrageneric lichen taxa, 40 lichenicolous fungi), Estonia (802 lichens, 39 lichenicolous fungi, 22 non-lichenized allied taxa), the Czech Republic (1534 lichens), and Belgium (930 lichens, 201 lichenicolous fungi, 20 doubtfully lichenicolous or related fungi). Full coverage of the literature pertaining to the respective countries is given in all checklists, except Estonia.

Languages are not so important in such works, except in the introductions, which tell us the interesting histories of lichenological explorations. They are: a) Slovenia: English, b) Estonia: English, c) Czech Republic: Czech, but kept short, with a generous English summary, d) Belgium: English, French and Dutch. The checklists differ in some important details: a) Those of Slovenia and Estonia are largely the result of very recent work, the others rely more on "historical" records, including - and this is meant as a compliment - those of the senior authors, Sérusiaux and Vezda; b) Annotation: the checklist of Belgium contains important annotations for certain taxa (in English), including relevant literature, those of Slovenia and Estonia only report the substrates in which a certain species was found and a few marginal notes, that of the Czech Republic does not include any notes; c) Subdivisions of the survey area: the checklists of Belgium, Slovenia and Estonia report the occurrence of a species within several subdivisions of the respective countries (7 in Slovenia and in Belgium, 5 in Estonia), that of the Czech Republic does not; d) Synonymies: several synonyms are reported in the checklists of Belgium, the Czech Republic, and Estonia, while that of Slovenia gives the name under which a given species was originally cited (but an index to synonyms is provided at the end); e) Standardization: this is a very important issue for checklists, and here they differ considerably. While nomenclature and generic concepts are not - in my opinion - a great problem, the general layouts and the editorial work are quite different, which could cause much extra work if we - and their authors - decide to merge them into a global database of lichen biodiversity worldwide (see later); furthermore, the checklists of Belgium, the Czech Republic and Estonia adopt author's abbreviations according to Brummitt & Powell (Royal Bot. Gard. Kew, 1992), that of Slovenia, unfortunately, does not. Two final remarks: 1) as an author of a checklist myself, I spent much time on these books (e.g. five hours on the outstanding checklist of the Czech Republic), looking for possible errors of mine. This was, indeed, time well-spent. These apparently arid papers looking like telephone directories reveal themselves - upon closer scrutiny - as products of hard work and deep insight. The authors deserve heartfelt thanks for having expended so much energy on something with no high Impact Factor and Citation Index scores, thereby setting important milestones for our discipline. 2) Maybe this will not be the "era of checklists" but we have plenty of them, and certainly this is the era of the Internet and global communication. Any text file - if properly structured - can be transformed into a database, and similar databases can be merged together, provided that they have a few fundamental things in common. The way to a global database of lichen biodiversity lies ahead: we only need a relatively small effort towards standardization (for some suggestions see those of T. Feuerer at: *http// www.rrz.uni-hamburg.de/biologie/ialb/herbar/lichenw.htm*). In Barcelona, hopefully, there will be some time for exploring this new pathway.

The Editor

ABBAS, ABDULLA & WU, JINONG, 1998 - *Lichens of Xinjiang*. - 178 pp., 45 photos in colour. ISBN 7-5372-1518-9. Sci-Tech & Hygiene Publishing House of Xinjiang, Urumqi (China). Price unknown. Info (e-mail): *abdulla@xju.edu.ch*. In Chinese, with title page, foreword, preface and abstract also in English. - This is the first lichen flora of the Xinjiang Uygur Autonomous Region, the largest region of China, covering 1/6 of the country. It includes treatments of 268 species, all those so far identified to species level among the 6000 specimens recently collected (numerous specimens are cited). Mr. Abbas

is a local lichenologist working in Urumqi, while Prof. J.N. Wu (who died in October 1999) was an eminent older lichenologist in Nanjing. Xinjiang does include large areas of lichenless Central Asian deserts (such as Taklimakan) but also areas with an abundant lichen flora (e.g. parts of Tian Shan Mts. and Altay Mts.). The flora is an honourable achievement in conditions where the world lichen literature must be difficult to obtain. For instance, the ascus tip structures are illustrated in the introduction - but also crystals of lichen acids, which are rarely used any more. Many colour illustrations (e.g., of *Aspicilia lacunosa*) are good. The plates also show that the identifications are largely reliable. Some recent changes in taxonomy (for example, *Peltigera* and *Cladonia*) need reexamination of the material. I could not read the Chinese descriptions but the species treatments indicate which species are found in the area. Most of the Xinjiang lichen flora consists of widespread temperate to arctic species, while those with oceanic affinities are little represented in this highly continental region. On the other hand there are elements which are restricted to arid Central Asia. Many of such species were described as new by A.H. Magnusson, and many of those are still poorly known in terms of taxonomic status and distribution. The present flora fills a large gap in our knowledge, and is therefore recommended to all major lichenological libraries.

Teuvo Ahti, Helsinki

Nordic Lichen Flora. Volume I. 1999. Introductory parts, Calicioid lichens and fungi. Bohuslän '5, Uddevalla, 94 pages, 82 colour photos; in English. ISBN 91-972863-3-8. Price 380 SKr (plus postage; lower prices for Europe and Scandinavia), available from: Svenska Botaniska Föreningen, c/o Museum of Evolution, Botany Section, Villavägen 6, SE-752 36 Uppsala, Sweden. - The Nordic countries (Denmark, Finland, Iceland, Norway and Sweden, incl. Faeroe Islands and Spitzbergen) are known to have a rich lichen flora. The landscape is very varied, offering a wide range of vegetation, climate- and rock types. Moreover the area has a long tradition of lichen study. Both Linnaeus and Acharius lived and worked there. Consequently a lichen flora of this area is a huge and very important project; huge because of the vast materials that have to be studied, both in literature and in specimens, and important because many taxa were described from this area, and many elements of its lichen flora have a wide distribution in the Northern Hemisphere and beyond. The first volume contains a treatment of the "Calicioid lichens and fungi", prepared by the well-known specialist of this group, Leif Tibell. It treats all genera traditionally included in the Caliciales, mainly lichenized macro- and microlichens, but also including the lichenicolous genus *Sphinctrina* and the non-lichenized fungi with needle-like ascocarps *Chaenothecopsis*, *Microcalicium*, *Mycocalicium*, *Phaeocalicium* and *Stenocybe*. Altogether 81 species. The chosen format could be described as moderately detailed, more or less like the *British Lichen Flora*, a format that has proven its usefulness. The descriptions give sufficient detail to correct any derailments that might happen with the use of the keys. Separate paragraphs deal with the secondary chemistry and ecology. The distribution is given at the county level, and special characteristics and confusion possibilities are treated in notes. For each species a distribution map is given and, surprisingly, a good colour photograph! The Caliciales tend to have wide distributions. This book is therefore highly recommended (also for those outside of Scandinavia) for the

temperate zones of the world, the Arctic, and corresponding mountain zones. The Scandinavian lichenological community is to be congratulated on this fine book, and it is to be hoped that it will be followed soon by further treatments.

Harrie Sipman, Berlin

NOWAK, J., 1998. *Porosty, Tom. VI, Pt. 2, Buelliaceae (Physciaceae sensu lato)*. 236 pages, 26 black-and-white photograph tables; in Polish. Price US$ 25, available from: IB Publisher, Polish Academy of Sciences, W. Szafer Institute of Botany, Lubicz 46, PL-31-512 Kraków, Poland. fax (012) 219790; tel. (012) 215144; email: *ed-office@ib-pan.krakow.pl*. This volume continues the detailed Lichen Flora of Poland. Treated are the crustose Physciaceae, divided in the genera *Buellia*, *Diplotomma*, *Diploicia*, *Dimelaena*, *Rinodinella*, *Rinodina* and *Phaeorhiza*. Besides detailed keys, a detailed description is presented for each species, often occupying almost a whole page, while the treatment of distribution and ecology and further notes are short. No notes on easily confused taxa are given. Occasionally keys to infraspecific taxa are provided and significant varieties treated briefly. Poland is known to have an active lichenological community with a long tradition. The use of a more widely understood language would have contributed to make their experience and knowledge of the Polish lichen flora available to people outside the country, for whom it will certainly have much of interest.

Harrie Sipman, Berlin

CIESLINSKI S. & FALTYNOWICZ W. (eds.), 1999 - *Atlas of the geographical distribution of lichens in Poland.* Part 2. Krakow, 61 pages. ISBN 83-85444-71-8. English and Polish. Available from: IB Publisher, Polish Academy of Sciences, W. Szafer Institute of Botany, Lubicz 46, PL-31-512 Kraków, Poland. fax (012) 219790; tel. (012) 215144; email: *ed-office@ib-pan.krakow.pl*. - This second issue (Part 1 appeared in 1993) treats 10 species, *Agonimia tristicula*, *Collema flaccidum*, *Gyalecta jenensis*, *Lasallia pustulata*, *Leucocarpia biatorella*, *Normandina pulchella*, *Phaeophyscia kairamoi*, *Ptychographa flexella*, *Usnea capillaris* and *U. carpinea*. For each species ecology and distribution in Poland and beyond are described, followed by a list of localities, relevant references, including those with Polish records, and a map with the Polish distribution, with a distinction between pre-1900, 1901-1960 and after-1960 localities.

Harrie Sipman, Berlin

WIRTH V. & DÜLL R., 2000. *Farbatlas Flechten und Moose*. 320 pages, 303 photos; Verlag Eugen Ulmer, Stuttgart. Price: 58 DM. email: *info@ulmer.de*; ISBN 3-8001-3517-5; in German. This is a pocket-sized book intended for a wider public. It contains short introductions to lichens and bryophytes and how to recognize them, while most of the book is filled with species treatments. Each species takes up one page and has a large colour photograph, of the superior quality for which V. Wirth is famous. About 150 lichen species are treated, mainly macrolichens. The intention of the book is that the reader can recognize the species by picture. Pictures of similar species are grouped together, and there is only a very rudimentary key to about ten species groups. The book has a great advantage over earlier German productions of this type in that the pictures are of really high quality and the selection of species is very adequate. Recommended for use in clean-air sections of Central Europe, and for anybody loving good lichen photographs.

Harrie Sipman, Berlin

ST. CLAIR L. - *A Color Guidebook to Common Rock Mountain Lichens.* Paperback. Price: US$ 19.95; 242 pages; ISBN 0-8425-2454-1. Available from: The M.L. Bean Life Science Museum 290 MLBM, Brigham Young University Provo, Utah 84602 USA. Payment: by check, money order or credit card (Mastercard or Visa). Shipping and handling: $2.50 for the first copy and $1.00 for each additional copy. Orders can also be placed by phone (+1-801-378-4879), fax (+1-801-378-3733), or email (*larry stclair@byu.edu*). - As the first comprehensive treatment of Rocky Mountain lichens, this guidebook contains an extensive introduction on the use of lichens as biomonitors, keys, detailed species descriptions, and colour photographs for almost 200 common Rocky Mountain lichens. Designed for use by both beginners and professionals, it fills a void in western North American lichenology. It provides information about common lichens from the northern Rocky Mountains south into the Great Basin, Colorado Plateau, and the Sky Island Mountains of southeastern Arizona and southwestern New Mexico.

REPORTS

XIII Symposium of Cryptogamic Botany (Madrid, December 19th-21st 1999)

This traditional Symposium, held at the Universidad Complutense de Madrid, and organized the Faculties of Biology and Pharmacy, confirmed its status as an active forum for discussion of the latest advances in Cryptogamic Botany, including Lichenology, in southern Europe. More than 40 lichenologists were present, mainly from Spain, but also from Portugal, Italy, Austria and Morocco. Lichenological communications on lichens were wide-ranging. During Poster Sessions, contributions on taxonomy, ecology and phytogeography of lichen genera (*Usnea*, *Placynthium*, *Lobaria*, *Pseudocyphellaria*, *Sticta*, etc.) and species (*Buellia ericina*, *Caloplaca saxicola*), and lichenicolous fungi (*Arthonia*, *Polycoccum*) were presented and discussed. Most of them were related to the ambitious Iberian Lichen Flora project: the results will contribute to a better knowledge of lichen diversity in this area, and to the scientific quality of that forthcoming work. Reflecting the high interest in molecular methods, there were numerous contributions on the phylogenetic relationships and population biology of several lichen genera (*Physconia*, *Parmelia*, *Koerberia*, *Buellia epigaea* group, etc.), followed by a stimulating discussion. Phytosociology and conservation of lichen species or communities made up the sessions centred on taxonomy and biology. I wish to emphasize the contributions by our colleagues from Italy and Morocco. The most interesting results concerned phytogeography and diversity in the W Mediterranean Region. Active and high quality participation were maintained in the sessions dedicated to Ecophysiology, Bioindication and Biodeterioration. The effects of pollutants on species and communities, the ecophysiological and anatomical responses from different habitat conditions, water relations and morphology of lichen thalli, colonization and deterioration of historical monuments by lichens, were the most treated subjects. Areas for future research were emphasized in the workshop on *Structure of the lichen thallus*, organized as a follow-up to the former Symposium at Valencia. Also in this section, we very much appreciated the contributions of our Portuguese and Italian colleagues. The Scientific Committee granted

a special Award for the best contribution by a young researcher, which went to the poster by P. Pinho, J. Pereira and C. Máguas (Centro de Ecologia e Biologia Vegetal. Lisboa, Portugal) entitled "Lobaria pulmonaria *(L.) Hoffm. Biomass variation: experimental methods to access environmental changes*". In conjunction with the Symposium, the Steering Committee organized a workshop on "*Magnitude and distribution of biodiversity. Evolution and crisis*". S. Rivas-Martínez, P.L. Nimis, L. Kappen and D. Hawksworth presented examples of ecological factors (climate, pollution, extreme conditions) affecting biodiversity worldwide. P.L. Nimis also demonstrated the new possibilities opened up by the Internet to reach a better knowledge of lichen diversity worldwide, and the transformation of his earlier checklist of Italian lichens into a database searchable on-line. Finally, D. Hawksworth gave a talk about past and present biodiversity studies, and put forward an interesting point of view about reasons for protecting threatened species of fungi. P.T. DePriest and B. Schroeter, the keynote speakers of the Lichen Section, offered us interesting advanced results from their recent research. They delivered excellent lectures on the phylogeny and evolution of lichen symbionts and on ecophysiological behavior (photosynthesis and primary production) of lichens in extreme environments, respectively. The interest of these lectures was enhanced by the active part played by the participants during the discussion. Contributions will be eventually published in a special volume of *Lazaroa*, edited by the Universidad Complutense. As usual, the meeting of the Sociedad Española de Liquenología (SEL) was held during the Symposium, chaired by the new Board, renewed during the last SEL excursion in September 1998, of: A. Crespo (President), C. Ascaso (Vice-president), N. Hladun (Treasurer and responsible for publications), L.G. Sancho (Secretary), J. Álvarez, X. Llimona and V. Atienza. J.M. Egea, the coordinator of the Iberian Lichen Flora Project, spoke on the progress of this project, with special emphasis on the publication of the first volume. The variety and quantity of the lichenological subjects in this Symposium testify to the impressive scientific activity of the large and heterogeneous group of Mediterranean lichenologists. As usual, this was also a meeting of friends, sharing their common interests, interchanging information, and jointly planning new research. The participation of so many new young researchers, who acquired more confidence and greater motivation, was perhaps the greatest achievement of the Congress. I myself had the impression of being surrounded by an unusually easy and constructive atmosphere, and I think that all participants shared this feeling. All those who contributed to the organization, directed by Ana Crespo (President of the Symposium), are to be thanked for their efforts to unify scientific communication and personal relationships in such a pleasant and constructive atmosphere. The next meeting will be organized by the University of Murcia (June 2002), under the presidency of the mycologist, Dr. M. Honrubia.

Simon Fos, Valencia

14th Meeting of Australasian Lichenologists (Melbourne, April 29-30th 2000)

Participants: Alan Archer, Jennifer Bannister, David Eldridge, Jack Elix, Sharon Ford, Bruce Fuhrer, Jim Gardner, Gintaras Kantvilas, Niels Klazenga, Simone Louwhoff, Dorothy Mahler, Tom May, Pina Milne, Martine Paull, Kathleen Ralston, Noel Schleiger, Val Stajsic, Nell & Neville Stevens.

Saturday April 29th - *Conference* - The 14th meeting of the Australasian lichenologists took place on april 29th at the Royal Botanic Gardens, Melbourne, Australia. The conference, attended by 19 participants, including professionals, Ph.D. students, and (very) keen and capable amateurs, was opened with a welcome by T. May, mycologist from MEL. This was followed by an address by J. Elix, who reflected on the history of The Australasian Lichenologists and on the progress of lichenology in Australia (through the *Flora of Australia* volumes and individual contributions). Sh. Ford, a Ph.D. student at Deakin University, Melbourne, working on lichens in the Victorian rainforest, presented preliminary results of her research, including a comparison of the lichen flora from different types of rainforest, and host preference. J. Elix from the Australian National University, Canberra, accompanied his presentation on "Why are lichens coloured?" with a colourful slide-show, and talked about the nature and function of some of the chemicals responsible for the bright colours of lichens. J. Bannister, University of Otago Herbarium, was our much appreciated "token" New Zealand participant, and spoke about the variation and distribution of species of *Ramalina* of New Zealand, based on herbarium records and her personal collections and observations. K. Ralston, an Honorary Associate at MEL, spoke about Australia's pioneer lichenologist, the Reverend F.R.M. Wilson, providing an insight into the life of this Presbyterian Minister and dedicated lichen collector, and his contributions to lichenology in Australia. G. Kantvilas, from the Tasmanian Herbarium in Hobart, spoke about the conservation of Tasmanian lichens, highlighting the importance of legislative protection for lichens and the preservation of lichen habitats by means of reserves. Along similar lines, D. Eldridge, from the Department of Land and Conservation in New South Wales, presented a proposal for listing non-vascular plants on the Threatened Species List, and stressed that both individuals and specialist groups in Australia, such as the Australasian Lichenologists, should nominate and submit a list of lichen species to be included on the Threatened Species List. A. Archer, Honorary Associate of the National Herbarium of NSW, presented his findings on the family Graphidaceae, with detailed slides of some of the spores and thalli of the species examined, including new species reported. S. Louwhoff spoke of her search for Parmeliaceae (and croissants) in New Caledonia, part of a Ph.D. study at the Australian National University, Canberra. She presented a travelogue of her fieldwork in New Caledonia, including slides of new species described. An informal meeting followed, during which the inclusion of lichens on the Threatened Species List was again discussed, especially because of the need to raise the profile of cryptogams. Progress on the forthcoming volumes of the *Flora of Australia* was also discussed. The need for postdoctoral positions to train and employ young Australian taxonomists was also discussed, and the students present were much in favour of this suggestion. The Blue Mountains, New South Wales, were suggested as the venue for the next meeting, in 2002. A Conference dinner was held at the Cotton Lounge, Toorak, where fine food, wine and company made for a good night for all.

Sunday April 30th - *Fieldtrip to the Brisbane Ranges National Park* - After a beautiful, sunny day on the Saturday (which we spent indoors listening to lectures), we woke to the sound of rain on Sunday morning (to be spent outdoors collecting lichens). Most lichenologists are probably familiar with this meteorological phenomenon. Nevertheless most of the participants from the previous day met at the designated spot (Sapling Gully picnic area) in the Brisbane Ranges National Park, armed with raincoats, umbrellas, collecting gear and a happy disposition. The Brisbane Ranges National Park is

situated approximately 80 km west of Melbourne and has a rich native flora, dominated by *Eucalyptus*, *Hakea*, Bush peas (*Pultenea*), *Grevillea* and *Acacia*. A list of 35 species in 23 genera of lichens had been prepared by Kath and Sharon, and our aim was to find these lichens, and add more to the list! Soon there was the familiar sight of bottoms up and noses down, followed by excited chatter, or disappointed sighs. The hardest part is always getting the excited mob back into the car for the next collecting spot, but Sharon handled it well with promises of coffee and home-made chocolate slice. Despite the rain, small paper bags were filling up and new records were being added to the list rapidly. The crowd dispersed in the afternoon with people needing to catch planes, relatives, beer, some sleep... I am certain that I speak for all participants in saying that the Conference was a success, in every way, especially in terms of the exchange of invaluable ideas and discussions which took place. Many thanks are extended to K. Ralston for organizing the formal part of the conference, and the dinner, and to Sh. Ford for organizing the field-trip and a very scrumptious lunch (also home-made!). We are most grateful to the National Herbarium, Royal Botanic Gardens, Melbourne, for providing the venue, technical equipment and refreshments and to Parks Victoria for providing permission to make small, personal collections. Looking forward to the next meeting already!

Simone Louwhoff, Canberra

California Lichen Society Lectures

The California Lichen Society sponsored a series of lectures during the early months of 2000, held at the Herbarium of the University of California at Berkeley. In February, environmental consultant David Magney spoke about *Rare and Endangered Lichens*. He described the laws and regulations already in place which can be used to protect them, and the need to educate both the public and the state legislators about lichens so that this protection will become a fact. David has prepared a Preliminary Red List for Californian Lichens, available on the web at *http://128.32.109.44/red page.html*. The world of mosses was the subject of the March lecture. Mona Bourell, Senior Curatorial Assistant in the Department of Botany at the California Academy of Sciences, gave an illustrated and detailed introduction to the bryophytes, including the habitats they so often share with lichens, which opened the eyes of many in the audience to the variety and beauty of mosses. Richard Moe, phycologist at the University of California Herbarium, spoke to us in April about *Algae, in and out of Lichens*. His lecture gave an overview of the changes in the taxonomy of this group over the years; their adaptation to the many environments, marine and terrestrial, in which they occur; and the role of algae as photobionts in lichens and other plants and animals. The final lecture was an impressive report by Nina Jablonski, Chair of the Department of Anthropology at the California Academy of Sciences and editor of *The Natural History of the Doucs and Snub-nosed Monkeys*. She spoke about the lichen-eating snub-nosed langurs of southern China, interesting monkeys which are one of the very few primates that eat lichens. In one species, *Rhinopithecus bieti*, lichens are the primary component of their diet. The lecture included information on social organization and other aspects of the lives of these monkeys as well. The lecture series was declared a success and will be continued next year.

Janet Doell

Lichen Exhibition in Bratislava (July 22nd - October 29th 1999)

An exhibition entitled *Lichens - Endangered Partnership* was held at the Slovak National Museum of Bratislava last year. In a display area of about 192 m^2, 45 posters and 8 museum showcases were placed. Nearly 130 lichen specimens from various parts of the world, as well as medicaments, cosmetic products, decorative articles, literature, etc., were displayed. A leaflet (kindly sponsored by The Club of Botanists Ján Futák), provided the visitors with all there was to know about lichens in a nutshell. The exhibition aimed at making the general public familiar with these inconspicuous organisms (often confused with mosses!), combining education with delight. It focused both on the high susceptibility of lichens to environmental disturbances, causing their widespread extinction and the need of their conservation. The high importance of lichens as biomonitors of atmospheric pollution was also stressed. The exhibition was visited by about 9,000 visitors, including residents - mostly school children, teachers, University students of botany, the staff of other museums as well as many tourists. We are very pleased that the exhibition will continue to be shown this year in other Slovak museums, such as those in Liptovský Mikuláš and Hlohovec, so that even more visitors can see it. The organizers would like to express their deepest thanks to all those who unselfishly contributed to the successful realization of the exhibition, particularly J. Halda and H. Wójciak, and further (alphabetically) to M. Backor, V. Banásová, I.M. Brodo, I. Kautmanová, G. McKie, Z. Kyselová, P. W. Lambley, A. Lackovicková, J. Liška, W. M. Malcolm, Z. Palice, I. Pišút, S. Sharnoff, D. Slávikóvá, TOMs of Maine (USA) and, last but not least, V. Wirth.

Eva Lisická, Bratislava, Slovakia

Fourth GLAL Meeting, Bariloche (November 28th- December 4th 1999)

The Fourth Meeting of the Grupo Latino Americano de Liquenólogos (GLAL4), took place at the Centro Regional Universitario Bariloche (Universidad Nacional del Comahue), in Bariloche, Argentina, at the end of 1999. Susana Calvelo and Sandra Liberatore organized it with the help of Emiliana Bernasconi. Lichenologists from Austria, Brasil, Chile, Finland, Germany and Argentina attended. During the meeting devoted to lichens from Latin America there were papers on lichen culture, taxonomy of different groups, historical review of lichenology in Uruguay, morphology and chemistry of lichens, special programs for literature on-line, checklist information, uses of lichens as bioindicators, beside the poster sessions. Two round table discussions were held, one on the cryptogamic flora of Tierra del Fuego and the other on the teaching of lichenology at different levels of education. There were three field trips: to the Patagonian steppe, to a *Nothofagus pumilio* deciduous forest and to the Valdinian rainforest. T. Ahti and S. Stenroos gave a Workshop on Cladoniaceae and O. Vitikainen on *Peltigera*. During the meeting there was also a General Assembly of GLAL. As usual, the place where the next meeting will be held was chosen: GLAL5 will be at Valparaíso (Chile). The leader of GLAL for the next biennium (2000-2001) will be the local lichenologist Dr. Wanda Quilhot. As the former leader of GLAL, I would like to thank all who have collaborated during the period 1998-1999. I thank also the lichenologists who attended GLAL4 and

provided an opportunity to learn from their profound knowledge of lichens; as well as the young lichenologists who, with their enthusiasm, gave meaning to these events.

Susana Calvelo, Bariloche

Camillo Sbarbaro: *Lichens* (a translation)

The name of Camillo Sbarbaro (1888-1967) is known to several lichenologists. As an amateur, he assembled one of the most important Italian collections of the XXth century. His intense correspondence with lichenologists such as B. de Lesdain, H. Magnusson, M. Servit and A. Vezda resulted in the description of 127 species from material collected by him, c. 20 of which bear his name. Sbarbaro, however, is best known in Italy as a writer and a poet, as one of the classic authors of Italian XXth Century literature. His written thoughts on his herbarium and lichens, famous in Italy but unknown abroad, are in a very sophisticated Italian, and therefore difficult to translate. Alessandra Knowles (Trieste) has dared to attempt an English translation, which was slightly revised by D. & P. Hawksowrth (London), Mark Seaward (Bradford), and Cliff Smith (Honolulu). Here they are, with the hope that they will strike a chord in many of us whose science is stimulated by the beauty of our organisms.

The Editor

LICHENS

1. It clutters up my room and saturates it with the smell of undergrowth: it's a lichen herbarium. Assortments of wood splinters and chips of stone, providing almost a Sample book of the World. Because collecting plants is collecting places. There is nothing like a plant that springs from it to retain a site in the memory; being intrinsic to it, as that which reflects its nature and feels its every circumstance, it then replays the site back in the most tangible of ways. Carrying the voice of the torrent or the breath of the sea, the air of the city or that of the heights, it evokes in who collected it the hour and the season. Dried, it still holds tidings of how it was touched by the sun.

2. As a boy, called up to the master's desk to explain the *Orobanche*, I stood tiptoe to peep into the book the master held open in front of him, trying to work out whether I was expected to speak about roots or about legs. It is perhaps for this reason that, as soon as studying botany stopped being an obligation, I started a herbarium. My exclamatory encounter with the silver rays of *Carlina* opening tight to the ground, dates back to those years; so does that with the silk bow of *Erioforo* and with the *Anagallis tenella* "clinging to the clay with its tiny hands of leaves, jingling in its modest pink". Enchanting encounters. Of each plant I would take in the appearance, as a fossil in the stratum - which retains it for ever, does the trace of a leaf or an beetle's wing. With my loving inventory of a tiny part of the world, that with which I had most affinity, I was unconsciously satisfying my "supine love of things". Later, taken by my predilection for muted existences, I turned to more rejected forms of life. Specimens of moss I collected whilst on patrol on the Asolone, on the Lémerle and on the Assa, are now held at Falköping in Sweden and Berkeley in California. Until I reached lichens: a haven which had already been assured for me by a verse in my first booklet: "the golden wall-encrusting parmelia" (The "golden parmelia", on walls and barks, is the most obvious and festive amongst the lichens). Now, in my memory - where, placed in time, no more than

two or three facts of the entire History of the World float - for lichens I hold, through physiognomy, an infinity of names and surnames. This happens to me with nothing else. With trees, for instance, it's already something if I can distinguish, by name, a magnolia from a pine. The thing is that a tree lives a life that is so much fuller and harmonious than our own, that giving it a name is to limit it; whilst greeting the inconspicuous and neglected lichens, calling them by name feels like helping them exist.

3. Lichens prosper from the regions of the clouds to those sprayed by the sea. They climb peaks where no other form of vegetation can take root. They are neither disheartened by deserts nor evicted by glaciers, nor the tropics or the polar circle. They defy the darkness of caverns and risk their lives in the mouths of volcanoes. Their only fear is the nearness of people. Because of this misanthropy, cities are the only barriers which stop them. If they dare to cross, they either go and look for air at the top of bell towers, or end up losing their health and their face. City lichens are sterile, gloomy and asphyxiated; human breath pollutes them. To find a recognisable lichen in Rome means climbing the cupola of St. Peter's.

4. Lichens make their home everywhere; yet, in choosing an abode, each species has its own preferences. Most lichens live on wood or stone. However, of the former, some may choose the olive tree, others the cypress and yet others the pine. Others with more fastidious tastes take up residence only on one particular kind of tree: the jujube or the elder. Even on the same tree, some live on the leaves, some on the bark, and others on the wood; among the latter there are those who select living wood and others that prefer it dried or even rotting. Some only live on charred wood. And there are lichens that live on picket fences, on beams, or telegraph poles; on culms, in hedges, in moss... The same goes for stone lichens. Some choose to live in limestone; others abhor it to the point of not being able to even tolerate its presence in the composition of the stone. Some have a preference for sandstone and pudding stone; others for gypsum or trachyte and basalt. For lichens can attack even the hardest of stones; using acids of their own making they crumble them and perforate them to shelter their seeds from the winds. There are, in the Alps, slabs riddled like sieves by the passing of a *Verrucaria*. Others live on bare soil. I have some, protected by cotton in little boxes, so delicate that the tiniest of jolts would turn them to dust: these were collected on the crags of Volterra and on the clays of Asciano. Others get by even on sand. There, without the slightest chance of them taking hold on something that is constantly shifting beneath them, tossed and turned by the winds and struck on all sides by the sun, they have learned to be self-sufficient. They fold over and curl up. They are the *déracinés* among lichens, lichens of no fixed abode, such as the *Parmelia vagante* of the Kirghiso steppes, the *Aspicilia mangereccia* of the deserts (bearing in its name the irreverence of science which sees it as the Manna from Heaven to feed the Chosen People). Those incapable of living as nomads, settle as they can on whatever in the sand offers them some kind of hold. On the dunes of Dunkerque I gathered some lodged on bone, on porcelain, on leather. There are also lichens that have a predilection for glass. I remember the alarming news in the papers of a patch threatening to destroy the stained-glass windows of Rheims cathedral. A lichen of the family of the perforators had chosen such a sumptuous lodging. No less demanding, another lichen has chosen the tomb of Cecilia Metella on the Via Appia as its home. And in Chile, there lives a clot of sulphur protruding in defence of the poised spear of the thorns of *Opuntia* which are its only habitat: it's the *Chrysothrix* or Golden Lock, called for this reason "touch me not". Finally, paying for the repulsion all its colleagues have for humankind,

there is a *Gyalecta,* which - it hurts to say - is coprophilous. Other lichens, whatever their habitat, require water as their accomplice, or wind. And among the former there are those that need dripping water, others lake water, and some running water; some only get along with seawater.

5. Dimensionally, there are lichens like plaques - that a man's arms could not encircle; like yarns - that if unfolded would stretch for a kilometre; like trees - almost hip-high. And a multitude of tiny ones: lichens like commas, full-stops or asterisks. There are some so small that only a lens can reveal them.

6. Lichens are the most multiform of all plants. Koerber deluded himself into thinking he could regiment them all within three categories: crusty, leafy, and shrubby. Yet how many different meanings should each of these adjectives have to try and encompass the polymorphism of lichens! Many lichens form imbricated tile-like roofs; many others pavements made up of triangular, pentagonal, polygonal tiles; others Milky Ways or stellar systems; others, dangling from branches, form beards, horses' manes, Absalomic heads of hair. One whole tribe, the Graphideae, covers its support with indecipherable writing: lower and upper case letters, engraved or in relief; linear, forked, Chinese or cuneiform. Others, the Caliciaceae, barely visible to the naked eye, are revealed under a lens as lightning-stricken, apocalyptic landscapes where cobras, standing upright on their tails, give out smoke from their tripod-like heads. Lichens simulate artefacts of all sorts: encaustics, inlays, fretwork and mosaics; brocade and felt; goblets, clubs, needles and nails, clasps, helmets and shields; matches; ribbons, nets and flabella; stamped leather; velvet and lace. They seem to be made, entirely or in part, of the most disparate substances: starch and flour; wool and crimson, gold, sulphur and sealing wax; sponge, cork and anthracite, parchment, and gutta-percha. There are beehive lichens; labyrinthine or madrepore lichens; lichens like oysters or coral reefs; fern-like lichens, or even octopus-like lichens complete with suckers; spherical, trapezoidal, raspberry-like, or shaped as a bandits' trumpet. *Encephalographa cerebrina,* as the name suggests, resembles a miniature brain.

7. Lichens are the most polychromic of all plants. They cover the whole spectrum: from milk white to pitch black, drawing on the most vivid colours and ranging through all compositions of shades and hues to embrace the richest of colour repertoires. In order to avoid setting off gratuitous, albeit spectacular, pinwheels, I shall stick to that most restrained and righteous of colours: the absence of colours. After drawing a first distinction between its main stages: grey, swarthy, sombre, and pitch, again the first may be pearl grey, steel grey, lead grey, ash grey etc; and so on for each of the others; in order to assign the peculiar gradation to each, lichen nomenclature resorts to comparatives and superlatives, or diminutives such as *fusculus, furvellus, nigritulus*; to intensifiers such as *tenebricosus* or participles, such as *nigricans,* and *fuscescens,* to suggest the aspiration to a colour that is never actually reached; to adjectives, such as *nigratus* and *obscuratus*, to designate a tint that seems not to be peculiar to the lichen but rather superimposed on it... In its dislike for inaccuracy, lichen nomenclature behaves like Fashion when it refers to lime green or coral red: it implies in the name of the tint, or associates to it, a precise reference. Thus, to remain in the limbo of blacks, it distinguishes African black (*maurus*), Bat black (*vespertilio*), Raven black (*coracinus*), Smoke black (*infumatus*), Mourning black (*pullatus*), Roast black (*torridus*), Burned black (*deustus*), Anthracite black (*anthracinus*), Soot black (*fuligineus*), Pitch black (*tenebricus*), a black as Hell (*stygius*)... This gloominess of tints mortifies little more than one family: the

Collemaceae. Most lichens display a variety of colours that range from the most vivid (vermilion, cochineal, flowing blood and clotted blood) to the most delicate half-tints such as caerulean, amethyst, orange, apricot, or crocus; or the least definable such as badium, gilvus, galbulus, carphinium... There is no lack of bi- and tricoloured lichens, variegated lichens, panther skin, Harlequin chequered, painter's palette; fulgent, flaring and even versicoloured lichens... Others, unpretentious at first sight, exibit a coloured margin, apothecium or hypothallus; or, grey on the outside, are snow-white, golden or cochineal on the inside. For some, a little humidity in the air is enough to brighten them up. Finally, even among the funereal *moirés* of the Collemaceae, there are those that gain vividness at the touch of a reagent; one such is *Thyrea jodopulchra*, the beautiful in iodine.

8. Lichens are an enigma. Saying they belong to the Vegetable Kingdom is having said all that is known for certain about them. Even using the word "entity" to describe them can be incautious given that some consider lichens nothing more that a phenomenon. From an empirical point of view, lichens are all those patches visible on stones and tree trunks that grow more frequently as one moves further away from the city borders. A first confirmation of this presumption comes from the patch turning green if scratched, but from there to certainty the road is long. So many of these forms of Life were first accepted as lichens, then pushed back into the throng of the algae and fungi, and later readmitted amongst the lichens, depending on the moment and on the observer!

9. An herbarium is a sample book of the world. A resource in hours of tedium. I open a packet at random. In each packet there is the world. When contemplating a place is not enough to appease my fondness for it, in the impossible illusion of becoming one with it, I have a fantasy, scientific in a way: an aerostat rather than wings to compensate for body weight and, with it, to become light, as we are told we would be in the atmosphere of the moon. Following my whims and fancies, I'd fly over that place, my hand grazing the olive grove as though the rumps of a flock; dive into a patch of green, let myself down where the water sings, and then shoot back to the surface and onto that crag to be intrigued by something white trembling on the precipice; coming and going, being here and there: plucking that place as if it were a bunch of grapes, and racing against a butterfly as it savours its field of flowers. With an herbarium this dream comes true - and not just for one place, but for the world! I open a packet at random: I am at San Cristobal, in the Galapagos; in India on the Palivi Hills; at four thousand feet on Mount Ndaza in China; among herds of reindeer on the banks of Lake Ladoga. I'm in Quintalito, on the Andean Cordillera in Chile; in sight of the Brenva at Portud; in Batavia, at the Botanical Garden; in an ancient barn at Antwerp; at the Isle of Dawson in Tierra del Fuego; at Archangel; at Rockland in Maine; at Zacualpan in Mexico: "Collected P.A. Purpus on a *Yucca elephantipes...*". And each plant I see and I touch, even the smallest of scraps, documents a point on the globe, it is part of that point. It was born there and there it comfortably grew. It is intrinsic to it, a token. What an excursion around the world it is to visit an herbarium! What leaps through space! Just now I was walking in the footsteps of the Gods on Mount Olympus in Greece, and here I am on the peak of the Amiata: and there's you, on an overcast autumn day, among towering chestnuts...

(Translation by A. Knowles. Courtesy of Edizioni del Pesce d'Oro, Milano)

FORUM

Species concepts in lichenology (by O.W. Purvis)

A previous discussion forum (*IAL Newsletter* 30, 1, 1997) focussed on generic concepts in lichens, particularly the relative merits of splitting large and unwieldy genera. I would like to initiate discussion at a lower level, the species, arguably the most important rank as these are (or should be) the practical labels we give to organisms which everyone uses. There has been some interesting recent discussion on species concepts (see *Lichenologist* 30, 4-5, e.g. Clerc pp. 321-340; Tibell pp 439-453). I wish to briefly consider: (1) species delimitation; (2) species and the users of taxonomy.

1. Species delimitation - Lichen species do not exist in the same way as they do for other organisms. Lichens are composite organisms, mini-ecosystems and do not have an integrated genome. We should not worry about this too much, but how we define the entities we call lichen species is very important. Ove Almborn (*Särtryck ur Botaniska Notiser*, 4: 454-7, 1965) highlighted the need for taxonomy to be based on 'firm principles' not deviating from other plant groups. But we know little about sexual reproduction in lichenised ascomycetes, and lichens are difficult experimental organisms under laboratory conditions. Modern science demands formulation of testable hypotheses. Lichen taxonomy is heavily based on a morphological species concept relying on phenetic characters including secondary metabolites which are assumed to reflect underlying genetic differences. Monographers rarely discuss in any detail the criteria they use to delimit species which may of course vary considerably from genus to genus. This is a pity and should be encouraged to stimulate more proactive debate in the wider lichenological community. Characterising lichen species depends on understanding the sources of phenotypic variation. Ecological factors must therefore be considered as e.g. pointed out by D. Hawksworth in 1973: "Species concepts are currently based on sharp discontinuities in one or several morphological and anatomical characters, particularly where there is evidence that genotypic differences are involved (e.g. the two entities growing side by side in a uniform ecological situation and retaining their identities) or there are differences in either ecological requirements or geographical distribution, or both". Whilst we cannot rely on always finding similar species in the same environment to enable comparison we have the potential nowadays to investigate genotypic differences. Lichen transplants also open up intriguing possibilities to test species delimitations and this is an area which can benefit from a multidisciplinary approach. There is great potential for lichenologists to work with scientists in other disciplines.

2 *Species and the users of Taxonomy* - Following the Rio Summit, there has probably never been a greater awareness of the importance of biodiversity. Species lists are appearing with increasing frequency in a variety of media, biodiversity action plans, www, legislation etc. Whilst this is to be applauded, this has profound implications for us all. My concern lies particularly with the aplication of names for our commoner lichens as these are the ones beginners are most likely to first encounter. They are also often chosen for experimental purposes (e.g. *Peltigera* for elucidating carbohydrate transfer). Common species often have a wide ecological amplitude and usually exhibit the greatest range of morphological variation. Some variation may be significant but only discernible using sophisticated techniques (histochemistry, SEM, TEM, secondary

metabolites, molecular). *Lecanora dispersa* is one case in point, there are many others. I predict we will find new, 'diagnostic' characters in lichens with every new technique we apply. The temptation will be to describe new entities at specific level. I suggest our taxonomy should also consider the end-user. At a practical level, compilers of checklists, etc., could usefully include the term 'aggregate' as well as indicating the species within it. For computer based keys this is no great problem. For many users this will be the level of precision we can expect. The term "aggregate" may also encompass a different range of species according to different concepts in different countries. This will give recorders an opportunity to record at an appropriate level and its use is often essential when reevaluating previous records where no specimen exists. Certainly, if our criteria for classifying lichens at a species level are too narrow and require too sophisticated techniques for interpretation, we run the risk of producing lists and floras which will only be comprehensible to other lichenologists with access to the necessary techniques. This will exclude many other potential end users and is not in the spirit of the Biodiversity Convention.

O. William Purvis, London

Reactions

Responding to the considerations by Purvis, we would like to stress that phylogenetic concepts based on molecular (DNA) characters are increasingly being employed to recognise species in species complexes, to determine *a posteriori* which types of phenotypic characters are good predictors of phylogenetic species, and to demonstrate how these characters evolve in lichenized fungi. For this purpose, sequence data of the more rapidly evolving regions of nrDNA such as ITS have been used: Differences between ITS sequences were recently taken as support for the description of a new species (*Peltigera phyllidiosa*, Goffinet & Miadlikowska, *Lichenologist* 31, 1999), and to confirm separation of closely related species (*Ramalina panizzei* from *R. fastigiata*, Groner & LaGreca, *Lichenologist* 29, 1997; *Lasallia rossica* from *L. papularis*, Niu & Wei, *Mycosystema* 6, 1993; *Teloschistes lacunosus* from *T. villosus*, Martin & Llimona in: Grube & Wedin (eds): Progress in Molecular Studies of Lichens, Graz 1998). However, a single locus will consistently recognise species as discrete clades of alleles that correlate with fixed phenotypic characters only when species have been genetically isolated for a sufficient period of time. Molecular characters, like phenotypic characters, may be polymorphic within a phylogenetic species, and across sibling species of a species complex. If a locus has not coalesced to different alleles among species, that locus will not separate those closely related species. Therefore, in cases where a single locus does not clearly resolve species correlated with phenotypic characters or biogeography, the addition of independently sorting genetic loci in studies of these species complexes is needed to provide a better estimate of species boundaries. The mycobiont genome can be sampled with a sequence-based approach to provide a number of independent, unlinked genetic loci. With the analysis of a multilocus data set, the phylogenetic species concept becomes an empirical approach, as phylogenetic species are recognised by the concordance of gene genealogies. Species are ranked at the level where genetic reticulation ends and genetic isolation begins, indicated on the multilocus tree by poorly resolved clades that are supported by robust branches. The loci that are found to be polymorphic within a phylogenetic species are then used for population genetic analysis. The incongruence of gene genealogies within species indicates that recombination has

occurred among individual mycobiont genotypes, suggesting that sexual reproduction occurs in lichenized fungi. Therefore, species concepts based on other eukaryotic groups in which sexual recombination is known and well characterized are also applicable to lichenized fungi. These data will also show which phenotypic characters are monomorphic within a phylogenetic species and are possibly good indicators of phylogenetic species in other related species complexes in which molecular data are not available. As for polymorphic phenotypic characters within a phylogenetic species, the role of genetics cf. environment can be inferred by ecological distribution of the variation.

Scott Kroken and Martin Grube, Graz

I am grateful to W.Purvis for having initiated this interesting discussion. I appreciated particularly point 2 (*Species and the users of taxonomy*), and I would like to contribute by adding a few thoughts and citations which might be of general interest. The first citation is from Claridge, Dawah & Wilson (1997 - *Species: The Units of Diversity*, p. 388): "It is not uncommon to find in discussions of species and species concepts researchers confusing empirical data used in the operation of recognizing a species with a conceptualization or definition of species. Empirical data can include such things as anatomy, morphology, genetics (DNA, proteins), behaviour, etc., all possibly evaluated and analysed in a variety of ways and with a variety of methods. Our abilities to gather these data are artificially constrained by technological advances; that is, we can only collect data that current technology permits. These artificial constraints on our ability to perceive variation in nature should not be confused with our desire, objectives, or attempts to illuminate natural variation". I agree with Purvis when he writes that an all too narrow species concept will exclude many other potential users, and is not in the spirit of the Biodiversity Convention. Taxonomists must have end-user in mind. I also agree with an earlier statement of Purvis (in Claridge *et al.*, 1977: p. 129): "The phylogenetic species concept has yet to play an important role in defining species...The biological species concept is inappropriate for lichens owing to technical problems in studying breeding behaviour in culture. In conclusion, lichen species are based on clear discontinuities in one or more unrelated fungal characters". Traditionally, the "morphological species concept" is the most practical for checklists, and especially for identification keys which can be used also by non-lichenologists. The discussion of "too narrow criteria classifying lichens" may be similar to that which confronts "splitters" versus "lumpers". According to Stuessy (1990: *Plant Taxonomy: the Systematic Evaluation of Comparative Data*, Columbia Univ. Press): "Splitters (narrow concept) tend to believe that morphological variations of a "minor" nature should be documented formally by the description of new taxa, whereas lumpers may observe the same variations but believe that their formal recognition is neither necessary nor desirable".

Josefina Alvarez-Andrés, Vigo

Albeit not new, the potential conflict between providers and users is becoming a sensitive issue in taxonomy. Due to higher international interest in biodiversity, and to the rapid development of computerized databases, the pressure for nomenclatural stability is increasing, and taxonomists will have to consider this point more than they did in the past. I still maintain that generic concepts are more relevant in this context. As far as species are concerned, we still do not have a clear, operationally valid and widely

accepted definition of what a lichen "species" is (for a review see also Kärnefelt, *Abstracta Botanica*, 1997). Because of this unfortunate and somehow embarassing situation, we cannot set any clear limit to the circumscription and description of new "species". Sometimes new species are described just to attract the attention of students to a peculiar morph, which is not always a bad thing. The case of *Lecanora dispersa s.lat.* is a good example: several "species" were described or resurrected in this clearly heterogeneous assemblage (see e.g. Poelt *et al.*, *Bibl. Lichenol.*, 58, 1995). This has rendered identifications more difficult, and perhaps not all of these "species" will survive DNA analysis. However, such a preliminary arrangement makes more justice to reality than it does "*Lecanora dispersa s.lat.*", and paves the way for further progress. Several "chemical" species are now considered as part of the natural variation of a taxon, but many proved to correlate with other characters, and are maintained as indipendent species. The point raised by Purvis is likely to provoke two types of reactions by two main groups of taxonomic providers: a) Taxonomists will rightly claim that they should be left free to describe "species", even if based on cryptic characters, because this is their job: nature cannot be always interpreted with a lens and a few colour reactions; b) Authors of floras could try to work out keys which are more user-friendly, accepting several degrees of approximation, and making a larger use of "aggregates". Some of the keys by Clauzade & Roux's *Determinlibro* (1985), e.g. those of *Acarospora*, already tried to solve this problem by a generous adoption of infraspecific taxa. Originally I did not like this solution, but on the light of this discussion, I have now the impression that it was a good idea.

Pier Luigi Nimis, Trieste

LICHENOLOGY-ON-LINE

New and interesting Websites

British Lichen Society website - The latest addition to the BLS web site is a list of synonyms of British Lichens, with notes, prepared by B. Coppins. The list includes many which predate the 1980 Check List. He welcomes comments, additions and corrections. The British Isles List of Lichens has been updated ahead of the publication of the Summer Bulletin. Changes to the list since its original publication are given and are fully incorporated in the List which is also available as a CSV file. *http://www.argonet.co.uk/users/jmgray/*

Cryptogamic collections of MA (Real Jardin Botanico, Madrid) - 100% of the collections of MA are databased and now searchable on line. The database includes information on over 100,000 specimens of algae, bryophytes, lichens and fungi, mostly from the Iberian Peninsula and the Western Mediterranean. Queries can be made by any data usually found on herbarium labels (taxon name, collection site, habitat, etc.). All identifications are recorded and maps (via PARC Xerox) are available for geo-referenced specimens. The on-line database is available at: *http://www.rjb.csic.es/herbario/crypto/crydb.htm*

Lichens and lichenology in the Netherlands - This new website includes a Lichen checklist (1999), also downloadable as a database, a Red List (1997), and a special

section (in Dutch) with several illustrations, plus links and e-mail addresses. Look at: *http://www.lichens.myweb.nl/*

Lichen identification keys - New "traditional" keys linked on this page are directed to students of North American lichens. They treat Cladoniaceae of the Queen Charlotte Islands and the genus *Lecanora* of New England and were placed on the Web by Philip May. The interactive keys of the LIAS project are continuously improved and updated and are becoming more and more user-friendly. Try e.g. the key for Cladoniaceae of the Queen Charlotte Islands and compare it with the traditional key for the same group. *http://www.bgbm.fu-berlin.de/sipman/keys/default.htm* (Harrie Sipman, Berlin)

The Farlow Herbarium website - A new lichen key is now available on the Farlow Herbarium website: *Preliminary key to* Lecanora *species likely to occur in New England*" by H. Th. Lumbsch and I. M. Brodo. This informal working key covers 64 species of *Lecanora s.lat.* known or believed likely to occur in New England. The URL for the Farlow's lichen-related pages is *http://herbaria.harvard.edu/ Data/Farlow/ lichens/index. html* Four other lichen-related works are presently available at the available at the Farlow website: *Key to* Cladina *and* Cladonia *on the Queen Charlotte Islands* by I.M. Brodo, *Identifying North American Lichens: A Guide to the Literature* by Ph. F. May and I.M. Brodo, *How to Identify a Macrolichen* by Ph. F. May, *How to Collect Lichens* by Ph. F. May. (Phil May).

Lichen checklists - A very nice link to many checklists available on-line. You can reach them by clicking on the respective country in a series of clickable maps. *http://www.rrz.uni-hamburg.de/biologie/ialb/herbar/lichenw.htm*

Lichenology in Slovakia - Information about lichenological activities in Slovakia can be found at the new page: *www.botanika.sk.*

Lichens of the British Isles - A list of published maps available at: *www.brad.ac.uk/ acad/envsci/infostore/herbarium/database.htm*

Herbaria of M.R.D.Seaward: available at: *www.brad.ac.uk/acad/envsci/infostore/ herbarium/ herbarium.htm*

Lichen herbaria of Oxford University (OXF): available at: *www.plants.ox.ac.uk/ herbarium/lichens.html*

Mediterranean lichens on-line - Some progress has been made on the Mediterranean lichens on-line project. It is now possible to ask for the geographic distribution of a species by querying a database which holds information on lichens in Cyprus, Israel, Italy, Morocco, Slovenia, Tunisia, Turkey (*http://biobase.kfunigraz.ac.at/ flechte/owa/askmediflo2*). These data come from previously published checklists, except for Italy, which is maintained as a continuously updated file. The second version of the Database on Italian lichens will be available, starting from September 30th, at the following new address: *http://dbiodbs.univ.trieste.it/askita.html*. Besides the usual updatings, it will contain new features such as a subdivision of the country in c. 100 Operational Geographic Units, and GIS-based predictive distributional maps for all species. Additionally, remarks and ecological indices can be retrieved, based on the entries in the database of Italian lichens (*http://biobase.kfunigraz.ac.at/flechte/owa /askitalflo*). The query name can also be reformatted to obtain information from other internet sites: e.g. a list of specimens stored in the herbarium of Trieste (TSB, a query to *http://biobase.kfunigraz.ac.at/flechte/owa/asktsb*), the presence of the species in Scandinavia by an external query to the Norwegian lichen database (*http://www.*

toyen.uio.no/botanisk/bot-mus/lav/soklavhb.htm), to retrieve taxonomic information on the genus name (external query to *http://www.nmnh.si.edu/ing/*), or to get a list of recent literature on the queried genus (external query to *http://www.toyen.uio.no/botanisk/bot-mus/lav/sok_rll.htm*). Work in progress includes the refinement of the taxonomic thesaurus, to account for different taxonomic concepts at the genus level in the national checklists, and links to other databases, in particular specimen-based herbarium databases. (M. Grube, Graz).

On-line specimen lists - As continuation to the forum discussions in the Newsletter 30, 2 and 32, 1 a prototype of an on-line specimen lists database is under development, and will be available for review and discussion during the IAL meeting in Barcelona. Storage of specimen data in an on-line database is likely to avoid problems of outdated hardware technology, a problem encountered with historic archives stored on electronic media, while achieving wide accessibility. The database will follow a simple model, which allows that plain text lists of specimens can be pasted on-line into the database. The lists will directly refer to monographic publications which include taxonomic information and a certain amount of descriptive data. If a person who has already submitted a specimen list wants to update that list, new entries can be appended by this person, using a password, to the already existing primary entry. (M. Grube, Graz)

Foliicolous lichens on-line - All you want to know about foliicolous lichens is now available on a new website at *http://www.uni-bayreuth.de/departments/planta2/ ass/fass2.html*, edited by Robert Lücking (Dept. of Plant Systematics, Univ. of Bayreuth). Divided into six chapters, it summarizes our present knowledge on different aspects of foliicolous lichen biology and provides a survey on current research projects in the Department. Separate contributions include an updated *Checklist of foliicolous lichens and their lichenicolous fungi*, as well as a list of species distributed in *Lichenes Foliicoli Exsiccati* and a *List of environmental index values for foliicolous lichens*. The *Checklist of foliicolous lichens and their lichenicolous fungi. Part I. Foliicolous lichens* (Lücking, Farkas, Sérusiaux & Sipman) continues the earlier checklists compiled by Farkas & Sipman (*Trop. Bryol.* 7: 93-148, 1993; *Abstr. Bot.* 21, 1: 173-206, 1997) but differs in including all published basionyms and synonyms except for nomenclatural synonyms used before Santesson (*Symb. Bot. Ups.* 12, 1: 1-590, 1952). In total, it comprises more than 1.800 entries, of which 699 correspond to currently accepted genera (71) and species (628). The remaining 185 generic and 920 specific names represent basionyms, synonyms, invalidly published names, non-lichenized fungi or taxa which do not contain foliicolous representatives. Including nomenclatural synonyms listed by Santesson, the proportion of accepted names, taxonomic synonyms, and nomenclatural synonyms can be roughly estimated to one third each. Details for accepted taxa include full synonymy, typification, systematic affinity, exsiccata and distribution. The following distribution types are distinguished (with proportions): pantropical or cosmopolitan (22%), tropical America and Australasia (5%), tropical America and Africa (9%), tropical Africa and Australasia (3%), tropical America (29%), tropical Africa (10%), tropical Australasia (19%), Europe (3%). This means that 39 % of all species show wide (intercontinental) distribution, while 61% exhibit restricted continental distributions. Species richness differentiated among continents amounts to 412 for tropical America, 276 for Africa, 310 for Australasia and 28 for Europe. A *Part II. Lichenicolous fungi* (Lücking, Diederich &

Etayo) complements the checklist of foliicolous lichens. So far, it contains 203 entries: 26 accepted genera with 77 species, 4 anamorphic genera with 9 species, as well as 29 generic and 58 specific names which represent basionyms, synonyms, invalidly published names, or taxa which are not lichenicolous on foliicolous lichens or do not contain species with such a biological status. It is further planned to compile a floristic checklist for tropical countries and major tropical regions, as well as a key to genera and species of foliicolous lichens (in collaboration with G. Rambold and the LIAS project). As far as possible, all accepted species will be illustrated by habit photographs. All checklists will be updated regularly every six months. Comments on the new website and the checklists which help to improve the displayed information are highly welcome (*rlucking@hotmail.com)*.

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: U S$ 1.00 per number (2 per volume); vol. 14-17: US$ 1.50 per number (2 per volume).

The cover-page illustration

"The Species Concept in Lichenology" from: Anonymous: *Herbolario Volgare, nel quale si dimostra a conoscer le herbe* etc., Venezia, 1536. - One of the earliest representations of a lichen - actually it represents an *Usnea* - taken from the second edition of a book originally written in Latin. Its origin is certainly earlier: a very similar drawing is present in a *Herbarius* written in Dutch, and published in Louvain in 1484; both of them have a faint resemblance with the earliest known drawing of a lichen (which was not any better), dating back to the year 1512, and probably originating from Byzanthium; for further information see Richardson D.H.S. 1974: *The Vanishing Lichens. Their History, Biology and Importance*. Hafner Press (Macmillan Publishing Co.), New York. pp 28-31. [Courtesy of the Linnaean Society, London].

LIST OF SOCIETIES

Australasia: Australasian Association for Lichenology. Info: W. M. Malcolm, Box 320, Nelson, New Zealand; phone & fax: +(64) 3 545 1660.

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

Central Europe: Bryologisch-lichenologische Arbeitsgemeinschaft für Mitteleuropa (BLAM), c/o Roman Türk, University of Salzburg, Dept. of Plant Physiology, Hellbrunnerstrasse 34, A-5020 Salzburg, Austria, phone: (+043)-(0)662-8044-5588, fax: (0)662 8044 619, e-mail: *roman.tuerk@sbg.ac.at* Info: Volker John, Kaiserslauterer Str. 86, D-67098 Bad Dürkheim, Germany; phone: (+49) 06322 67919, e-mail: *106370.1063@compuserve.com.*

Czech Republic: 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.

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