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A Bryologist of Eminence Retires

S. C. Bhatla, Department of Botany, Delhi University, Delhi-110007, India.

In his research career now spanning more than 40 years, Professor R. N. Chopra, FBS (born October 12, 1929) has made significant contributions in Plant Embryology, Morphogenesis and Bryology. In embryology, he discovered the now well known endosperm haustoria in the Cucurbitaceae and also unraveled the unique embryological features of the families Podostemaceae, Moraceae, Cactaceae, Anacardiaceae, Bixaceae and Cornaceae. In morphogenesis, Professor Chopra served as a member of the pioneering group of the late Professor Maheshwari in early 1950s in initiating researches on cell and tissue culture of plants which include culture of overies and ovules. But his more abiding interests during the last 32 years have been in the area of morphogenesis and physiology of bryophytes. Professor Chopra has made interesting, original contributions in understanding bud development in mosses, reproductive growth, apogamy and apospory. Nonetheless, his interests have been wider and have embraced the biology of bryophytes as a whole includ-

ing their taxonomy and morphology. Professor Chopra has to his credit more than 165 papers including contributions to books and comprehensive reviews. His book '**Biology of Bryophytes**' (written together with P. K. Kumra) was published by Wiley Eastern Ltd., New Delhi, in 1988. this book has become a very useful reference for post-graduate students and research scholars alike. His second book '**Bryophyte Development: Physiology and Biochemistry**' (edited together with S. C. Bhatla) was published in 1990 by CRC Press, Inc., Boca Raton. One more book on bryophytes - '**Topics in Bryology**' is under preparation.

Professor Chopra has served as an Additional Secretary of the International Society of Plant Morphologists (1975-84); Head, Department of Botany and Director, Centre of Advanced Study in Botany, University of Delhi (1982-82); Councillor of the Indian Botanical Society (1987-89); Vice-President of the Indian Bryological Society (1983-85) and has been its President since 1985. Professor Chopra's hobbies include poetry

writing, portrait sketching, vocal music and photography. In 1991 he published a book - '**Life and Nature**' comprising 60 poems in English.

Having devoted more than four decades in his research career, Professor Chopra superannuates on October 12, 1994.

Product News

HERBERLITECS

Everybody working in a herbarium during a visit is faced with the problem: there are thousands of specimens each with a herbarium label including information which is needed for citation of the specimen. For a monograph or revision, all this information must be taken home. There are usually several possibilities, for instance one can write down the label text and retype it into the computer at home; or it may be possible to xerox the specimens with labels or the whole herbarium sheets. I personally used to write the data on file cards in different colours (e.g. for types and exsiccate series). It would, of course, make sense to have the data in the computer, allowing you to incorporate them later into a manuscript, preventing the need for retyping. Maybe in some herbaria there are now computers, perhaps the older makes which are no longer used in the offices, in which the data can be entered and taken home on disk. Notebook computers are ideal for this purpose. Although the notebooks today have a 486 or at least a 386 processor and are priced higher than desktop machines, there are still 286-notebooks available at real bargain prices which fulfill the expected requirement of replacing a notebook and allowing you to keep notes e.g. on a trip away from home.

But there are always easier methods. When handy scanners became available six or seven years ago, I thought about scanning the label text into a computer. What sounds so easy is in fact more complicated. Firstly the scanner requires an adapter card to connect with the computer and this excludes the use with a laptop or a notebook for a botanist visiting a herbarium. There are only a very few handy scanner models which can be adapted to the parallel port of the computer and thus used in combination with a notebook. Secondly, it scans only an image and only the picture file can be taken home on disk. It also requires you to save the

file on disk and to give a name to it - you cannot just drag the scanner over the label and then go to the next. So this method is not a great advantage compared with xeroxing. Text recognition programs may allow the picture to be translated into an ASCII file (if it is type- and not handwritten). Although the recognition rate is quite high in modern programs and does not depend on a special type font, it still requires the picture to be sent through the text recognition program, adding one more step to the procedure and making it slower. So it was still a vision to sit in a herbarium and drag over one label after the other with a scanner connected to a small notebook and to get the label information into the computer as text. But this vision is now reality.

Primax now offers a pen-like handy scanner called Lector DataPen, which does not need a adapter card but is connected to the parallel port. It is dragged over the text and can read only one line at a time but has simultaneous text recognition (of characters from eleven different languages) and can read and recognize 1800 characters per minute. It uses the TWAIN interface of Windows programs and thus can read text directly into a word processor or also numbers into a spreadsheet. It is also useful for preparing manuscripts. If someone wants to include part of a diagnosis, locality information or a reference into their own manuscript, they can easily scan this text directly into the wordprocessor. The price complete with software is at present ca. \$400.— but will probably go down in the future.

Another scanner which can recognise characters instantaneously and read text from labels or bibliographies into a manuscript is ScanMan Easy Touch, by Logitech. It is also connected to the parallel port and thus usable with notebooks. In contrast with the DataPen, it resembles a nor-

mal scanner with 256 grey scales and a normal scan width of 105mm. However, if the option "scan text" is chosen, it imports directly into many word processors for MS-Windows, e.g. into Word for Windows, WordPerfect for Windows or Lotus Ami Pro. Price approx. 600.- DM (US\$ 350).

USEFUL WATCHES

In the *Bryological Times* no. 62/63 (October 1991), a wrist watch with built in altimeter was announced and recommended for fieldwork because of its small size and weight, high accuracy and low price compared with a standard altimeter. This altimeter wrist watch model made by CASIO is no longer available but has been replaced by a less attractive analogue watch with built in altimeter for the same price. CASIO which is famous for multifunction watches (e.g. for measuring blood pressure, diving watches or biorythm watches) has again changed its offer and has developed three other altimeter watches:

AW-330 AT-9E is again an analogue watch with digital altimeter. It works up to 4000 m and 100 m below sea level. It shows the absolute altitude, the difference in altitude to a previous point and the tendency of air pressure. The price is DM 189 in Germany (approx. US 115).

ALT-6000J is a digital model. It works up to 6000 m, has a memory for 50 readings from which a profile is shown as a bar. It includes a barometer which shows the air pressure, the tendency of air pressure and minimum and maximum values. It is also waterproof to 100 m depth and includes in addition a thermometer ranging from -20° to +60° and should be ideal for fieldtrips. The price is DM 299 in Germany (US\$ 175).

BM-200WJ resembles the altimeter announced in the *Bryological Times* in 1991 with a range up to 4000 m, indication of air pressure and tendency of air pressure over the past 18 hours displayed as a bar graph. As with the previous models, it has several alarms and is waterproof down to 100 m. It costs DM 179.

A simple method for clearing up slides of mosses for observation with the light microscope.

J.D. Kruijer & N. Klazenga, Rijksherbarium/Hortus Botanicus, P.O. Box 9514, 2300 RA Leiden, The Netherlands.

Slides of moss material for observation with the light microscope are not always sufficiently transparent. Consequently, the examination of details, such as the pores in the walls of leaf cells, may be rather difficult because of the low contrast. Stains, like an 1—2% aqueous solution of methylene blue, are often used for increasing the contrast and revealing details. However, the results of staining with methylene blue are not always satisfactory, especially when used with dark coloured or nearly opaque objects.

A simple method for clearing up and increasing the contrast in such cases is to stain the material with a diluted solution of iodine-potassium iodide (after Johansen, 1940). This stain is commonly used for staining starch and therefore is available almost everywhere. The iodine solution is also used for staining cellulose and hemicelluloses, but before it is added the material must first be hydrolysed with, respectively, sulphuric acid or hydrochloric acid (Johansen, 1940). Fortunately,

for the purpose of clearing up and increasing the contrast of moss material in slides, there is no need to hydrolyse the material first with any acid. The iodine solution can be added directly to wet material on a microscope slide. When soaked in this solution the material becomes almost immediately more transparent and its contrast increases. Consequently, the material can be examined more easily while the change in colour of the cell walls is insignificant.

This method has provided good results with slides of leaves or cross-sections of stems and branches of species belonging to the Hypopterygiaceae Mitt. Cell walls and pores, when present, became more visible. The walls became brighter but remained colourless to pale yellow, except for the middle lamellae, which occasionally changed to bright yellow. This was especially effective for some slides of leaves of herbarium specimens of *Cyathophorella adiantum* (Griff.) Fleisch. These specimens had narrow leaves with narrow leaf cells, whose lumen frequently contained granular and probably glutinous inclusions which obstructed observation of their walls.

Cross-sections of stems and branches of plants of Hypopterygiaceae-species, with inclusions in central strand cells (e.g. *Hypopterygium didictyon* C. Muell.), were also strongly improved by adding the iodine solution.

Clearing up with iodine-potassium iodide was also successful for slides of specimens that belong to *Dicranoloma* (Ren.) Ren. and lacked sufficient contrast of their own.

REFERENCE

Johansen, D.A. 1940. Plant microtechnique. McGraw-Hill Book Company, New York.

Bryophyte curation in Berlin: a disclaimer

In a recently published note, Frahm (in Bryol. Times 77: 7. 1994) makes the following assertion: "The material of the first two Bryotrop expedition[s] is deposited at the Botanical Museum Berlin... However, there is no more a bryophyte curator at the Botanical Museum in Berlin and by this way the material and data of the first two expeditions are no more accessible."

Neither of the two latter statements are true. It is perhaps unfortunate that, due to a prolonged leave of absence of the office holder, the position as curator of bryophytes at the Botanical Museum Berlin-Dahlem had to be filled temporarily with a botanist, C. Oberprieler, whose main research field is the *Compositae*. Nevertheless, he devotes all his skill and energy to curate the bryophyte collections in the Berlin herbarium and to ensure that the loan service remains fully functional. The "Bryotrop" expedition materials are processed in conjunction with M. Menzel, a former research associate and still a frequent guest at the Museum. Processing is completed for the first expedition (Peru 1982) and is in progress for the second one (Borneo 1986). Some family treatments for that second portion are still unallocated, and offers by specialists are welcome. Loans of the processed material are possible under normal terms.

The Director and staff of the Botanical Museum Berlin-Dahlem regret the misinformation resulting from the publication of Dr. Frahm's note, which might easily have been avoided had they been consulted beforehand.

Prof. P. Hiepko, Director of the Herbarium, Botanischer Garten und Botanisches Museum Berlin-Dahlem, Königin-Luise-Str. 6-8, D-14191 Berlin, Germany.

Other models could also be useful for fieldwork:

CPW-100-1A has a built-in compass which shows the direction in 16 segments (22,5° each) and a navigator ring and costs DM 259 (US\$152).

CPW-200-1C is as exact as 6° and costs DM 299 (US\$ 175). Both are waterproof to 50 - 100 m depth.

TS-200 has a built in thermometer. 30 readings can be stored and displayed as a bar chart. It is waterproof to 100 m depth and costs DM 139 (US\$82).

The GPS satellite navigators mentioned in the same issue of the *Bryological Times* 62/63 cost now, two years later, only about DM 1500 (US\$ 882).

J.-P. Frahm, Univ. Duisburg, FB 6, Bot., D-47048 Duisburg, Germany.

ABLS annual meeting in Knoxville, Tennessee, 7-11 August 1994

Anyone interested in further information should please contact Dr. Chicita F. Culberson, Department of Botany, Duke University, Box 90338, Durham, NC 27708-0338 (U.S.A.). Phone: (919) 684-3715. Fax: (919) 684-5412.

MONDAY MORNING SYMPOSIUM

ABLS BREAKFAST: U.T. CONFERENCE CENTER, ROOM 1404

CONTRIBUTED PAPERS: The A.J. SHARP Student Papers Session. Joint Session with the Bryological and Lichenological Section, BSA. KENNETH D. McFARLAND, Department of Botany, University of Tennessee, Knoxville, TN 37996-1100 (615/974-2256), presiding.

KENNETH D. McFARLAND. University of Tennessee. Opening remarks and a tribute to Professor A.J. Sharp.

DOUGLAS L. BERNHARD* and KAREN S. RENZAGLIA. East Tennessee State University. Origin of centrioles and early development of the locomotory apparatus in the moss *Aulacomnium palustre*.

DUANE EDWARDS. Southern Illinois University. The bryophyte diaspore bank in the soil of an upland deciduous forest.

SCOTT LaGRECA* and RYTAS VILGALYS. Duke University. The systematics of the *Ramalina americana* chemotype complex: a preliminary phylogeny based on rDNA ITS sequence data.

MARIA T. MOYA*, GARY J. BREKON, and FERNANDO J. BIRD. Southern Illinois University and University of Puerto Rico. Genetic variation in *Marchantia chenopoda* L. in Puerto Rico.

JAIME G. OAKLEY* and KAREN S. RENZAGLIA. East Tennessee State University. Ultrastructure of the spermatozoid of *Haplomitrium mniodes*.

STEVEN K. RICE* and PETER H. SCHUEPP. Duke University and McGill University, Quebec, Canada. The influence of branch and leaf morphology on boundary layer resistance in *Sphagnum trinitense* and *S. recurvum*.

ALISON WITHEY. Duke University. Developing a hypothesis of phylo-

genetic relationships of the Spiridentaceae (Musci) based on morphological and molecular data.

KWOK LEUNG YIP. Baylor University. Ultrastructure of the sporophyte-gametophyte junction in *Ephemerum cohaerens* (Hedw.) Hampe (Musci, Ephemeraceae).

MONDAY AFTERNOON SYMPOSIUM

SYMPOSIUM: The Developmental Biology of Bryophytes. Cosponsored by the Bryological and Lichenological Section, BSA. Organized by KAREN S. RENZAGLIA. Department of Biological Sciences, Box 70703, East Tennessee State University, Johnson City, TN 37614 (615/929-6930).

MARY JANE SAUNDERS. University of South Florida. Mosses as model systems to investigate the cell cycle.

ANGELA J. RUSSELL*, M.R. KNIGHT, T.L. WANG, A.J. TREWAVAS, and K.J. COVE. Leeds University, Leeds and John Innes Institute, Norwich, UK. *Physcomitrella patens*: a model organism for the study of plant development.

KEVIN C. VAUGHN* and JOHN C. HOFFMAN. USDA/ARS. Developmental changes in cytoskeletal proteins in bryophyte spermatogenous cells.

ROBERTO LIGRONE* and JEFFREY G. DUCKETT. Dipartimento di Biologia Vegetale, Napoli, Italy, and Queen Mary and Westfield College, London, UK. Cytoplasmic polarity and endoplasmic microtubules in food-conducting cells of bryophytes.

MONDAY EVENING SYMPOSIUM

ABLS EXECUTIVE COUNCIL MEETING

TUESDAY MORNING SYMPOSIUM

SYMPOSIUM (Continued from Monday Afternoon): The Developmental Biology of Bryophytes. Cosponsored by the Bryological and Lichenological

Section, BSA. Organized by KAREN S. RENZAGLIA. Department of Biological Sciences, Box 70703, East Tennessee State University, Johnson City, TN 37614 (615/929-6930).

JEFFREY G. DUCKETT*, ROBERTO LIGRONE, KEITH KINGHAM, and ANDREW R. LEITCH. Queen Mary and Westfield College, London, UK, and Dipartimento di Biologia Vegetale, Napoli, Italy. Differentiation of moss protonemata in relation to diaspore formation, anchorage and solute conduction.

BARBARA CRANDALL-STOTLER. Southern Illinois University. Developmental constraints, ontogenetic shifts and evolutionary trends in bryophytes.

DAVID J. GARBARY* and KAREN S. RENZAGLIA. St. Francis Xavier University, Nova Scotia, Canada and East Tennessee State University. Developmental anatomy and ultrastructure and the phylogeny of bryophytes.

CONTRIBUTED PAPERS: Ecology of bryophytes and lichens. Joint session with the Bryological and Lichenological Section, BSA. NANCY SLACK, Biology Department, Russell Sage College, Troy, NY 12180 (518/377-7422), presiding.

INES SASTRE-D.J. University of Puerto Rico. Nutrient status of bryophyte communities on coarse woody debris in subtropical wet forests of Puerto Rico.

CLIFFORD W. SMITH. University of Hawai'i at Manoa. Spray zone saxicolous lichen communities in Hawai'i.

SUSAN MOYLE STUDLAR* and SUZANNE McALISTER. West Virginia University. Bryophyte communities at Boehler Seeps, Oklahoma.

SUSAN WILL-WOLF*, BRUCE McCUNE, JON DEY, JERI PECK, and KARIN HEIMAN. University of Wisconsin and Illinois Wesleyan University.

Regional gradients in lichen community composition in southeastern USA.

TUESDAY AFTERNOON 1:30-5:00 PM

POSTER SESSION: The biology of bryophytes and lichens. Joint Session with the Bryological and Lichenological Section, BSA. **KNOXVILLE CONVENTION CENTER, HALL #.**

MARGARET BASILE*, KEITH ROBERTS, JAN PEART, and DOMINICK BASILE. Lehman College CUNY, Bronx, and John Innes Institute, Norwich, UK. Detection and localization of plant cell surface arabinogalactan proteins by tissue printing.

RICHARD D. HYERCZYK. St. Xavier University. The lichen flora of the Palos and Sag Valley Forest Preserves.

JOHN McMURRAY. University of California. Morphometric comparisons among three species of the moss genus *Thelia* (Leskeaceae).

TAKAO NARUI*, CHICITA F. CULBERSON, WILLIAM LOUIS CULBERSON, and SHOJI SHIBATA. Meiji College of Pharmacy, Setagaya-ku, Tokyo, Japan; Duke University; and Shibata Laboratory of Natural Medicinal Materials, c/o Minophagen Co., Shinjuku-ku, Tokyo, Japan. Phytochemical studies on the Umbilicariaceae (Ascomycotina, Lichens).

ROBERT J. THOMAS*, STEVE H. RYDER, MARK I. GARDNER, JONATHAN P. SHEETZ, and STEPHEN D. NICHIPOR. Bates College. Photosynthetic function of moss leaf lamellae.

JASON W. WALKER*, TERRY A. HEDDERSON, and RUSSELL L. CHAPMAN. Louisiana State University. Phylogenetic relationships among the major moss (Bryopsida) lineages inferred from cladistic analysis of nuclear-encoded rRNA sequences.

ABLS BUSINESS MEETING BUSINESS MEETING: BRYOLOGICAL AND LICHENOLOGICAL SECTION, BSA.

TUESDAY EVENING 6:30-9:00 PM

ABLS MIXER: Jointly with the Bryological and Lichenological Section, BSA. (Cash bar) HILTON HOTEL.

WEDNESDAY MORNING 10:00-12:00 PM

SYMPOSIUM: The Fields of Bryology and Lichenology: Current Status and Future Opportunities. Cosponsored by the Bryological and Lichenological Section, BSA. Organized by BRENT D. MISHLER, University and Jepson Herbaria, Department of Integrative Biology, University of California, Berkeley, CA 94720 (510/642-2740).

EFRAIN DE LUNA. Flora de Veracruz, Instituto de Ecología, Xalapa, Veracruz, Mexico. The status of and research opportunities in Latin American bryology.

PAULA T. DePRIEST. National Museum of Natural History, Smithsonian Institution. Lichenology: challenges and opportunities.

DALE H. VITT. Devonian Botanic Garden, University of Alberta, Canada. Applied bryology: possibilities for the future.

BRENT D. MISHLER. University and Jepson Herbaria, Department of Integrative Biology, University of California. The future of bryology in North America. (Introduction of the speaker by BARBARA M. THIERS.)

WEDNESDAY AFTERNOON 1:30-5:00 PM

CONTRIBUTED PAPERS: Floristics and systematics of bryophytes and lichens. Joint session with the Bryological and Lichenological Section, BSA. LEWIS E. ANDERSON, Department of Botany, Duke University, Durham NC 27708-0338 (919/684-2608), presiding.

FRANK D. BOWERS. University of Wisconsin-Stevens Point. Bryophytes of the Apostle Islands National Lakeshore.

PAUL G. DAVISON* and DAVID K. SMITH. University of North Alabama and University of Tennessee. Additions to the hepatic flora of the Aleutian Islands, Alaska.

JOHN J. ENGEL* and GARY L. SMITH MERRILL. Field Museum of Natural History. Studies of the Australasian species of *Telaranea* (Lepidoziaceae, Hepaticae).

GARY L. SMITH MERRILL. Field Museum of Natural History. An overview of the genus *Atrichum* in North America.

RICHARD W. SPJUT. World Botanical Associates. What is a species of *Niebla* (Ramalinaceae)?

RAYMOND STOTLER. Southern Illinois University. Richard Spruce: a sampler of hepatic taxa that he collected and wrote upon.

CONTRIBUTED PAPERS: Experimental and evolutionary bryology and lichenology. Joint session with the Bryological and Lichenological Section, BSA. MARGARET R. BASILE, Department of Biological Sciences, Lehman College-CUNY, Bronx, NY 10468 (718/960-8800), presiding.

SHARON E. BARTHOLOMEWBEGAN. West Chester University. Culture-induced phenovariations in sporelings of the Metzgeriidae (Hepatophyta).

DAVID J. GARBARY* and KAREN A. MacDONALD. St. Francis Xavier University, Antigonish, Nova Scotia, Canada. The brown seaweed *Ascophyllum nodosum* is a lichen.

JAMES D. LAWREY. George Mason University. Chemical ecology of hypocrealean lichen parasites.

LESLIE LEVERONE* and VALERIE C. PENCE. Xavier University, and Center for Reproduction of Endangered Wildlife, Cincinnati Zoo and Botanical Garden. Cryopreservation as a tool for germplasm preservation in bryophytes and pteridophytes.

CONSTANCE S. STUBBS. University of Maine. Lichen morphology, insect morphology, and insect behavior affect insect-mediated dispersal of sorediate lichens.

DALE H. VITT. Devonian Botanic Garden, University of Alberta, Edmonton, Canada. *Calomnion*: diversification and specialization on South Pacific islands.

LEE W. WILCOX*, LINDA E. GRAHAM, and MADELINE M. FISHER. University of Wisconsin. Hexose transport genes and proteins in charophycean algae and bryophytes: evolutionary and ecological significance.

NEW REVIEWS

Caspari, S. 1994. Die Moosflora der Moore und Feuchtgebiete im Südwestlichen Hunsrück. Limprichtia Bd. 3. 111 pp. and 100 grid maps. Price DM 25 (US\$ 15). Available from J.-P. Frahm, Universität Duisburg, FB 6, Botanik, D-47848 Duisburg, Germany.

Bhatla, S. C. 1994. Moss *Protone-ma* Differentiation. Research Studies Press, U.K. Price £51.00/\$84.50. Available from John Wiley & Sons Ltd, Baffins Lane, Chichester, West Sussex PO19 1UD, UK, or John Wiley & Sons (SEA) PTE, Ltd, 37 Jalan Pemimpin #05-04, Block B, Union Industrial Building, Singapore 2057.

M. O. Hill, C. D. Preston & A. J. E. Smith. 1994. *Atlas of the Bryophytes of Britain and Ireland, Vol. 3. Mosses (Diplolepidae)*. Harley Books, Martins, Great Horkesley, Colchester, CO6 4AH, United Kingdom. Hardcover. ISBN 0-946589-31-3. Price £27.50 to BBS members, £30.00 to others.

With this, the third volume of the Atlas of the British and Irish bryophytes, more than thirty years of mapping work, is completed. The present volume has an introductory chapter by M. O. Hill and F. Dominguez Lozano, with a numerical analysis of the distribution of the liverworts in Great Britain, attempting to explain which factors are the most important in determining the distributions of the species. The main part of the book is, of course, devoted to the maps of the distributions of the diplolepidous mosses, and to notes regarding their habitat, sexuality and distribution outside Britain and Ireland. The British bryologists are certainly to be envied for this accomplishment. [L.H.]

Boros, A., Járjai-Komlódi, M., Tóth, Z. & Nilsson, S. 1993. An atlas of recent European bryophyte spores. Scientia Publishing, Budapest. ISBN 963 8326 02 6. Available from: Zoltán Tóth, Department of Plant Taxonomy and Ecology, L. Eötvös University, Ludovika tér 2, H-1083 Budapest, Hungary. Price: US \$ 40:- + postage and handling US \$ 10 (airmail 14:-).

This is a second, expanded edition of the atlas which appeared first in 1975. In the beginning of the book there is a short introduction, where, i.a., the more important details of spore structures are outlined, and references are given to more detailed treatments of spore morphology. A bibliography (nine pages) follows, but the main part of the book, more than 290 of the 321 pages, is devoted to descriptions and photos of spores from 227 European bryophyte species. For 80 taxa, totally c. 120 SEM photos of spores or spore structures have been added to the light microscope photos present in the first edition and the nomenclature has been updated. For each species information is given about their distribution, ecology (= habitat), frequency of sporophytes and suggestions regarding the probability to find spores, spore morphology, chromosome numbers and the collection data of the studied specimen.

The habitat preferences of the taxa, which are summarized under the heading "Ecology", and the frequencies given for sporophyte formation are obviously based on knowledge from a limited geographical area in some cases. *Paludella squarrosa* is hardly an acidophilous species in southern Sweden, where it is often found in mineral-rich fens, whereas it grows both in mineral-poor and mineral-rich places further to the north. *Meesia longiseta* is not acidophilous either, but grows usually in rather mineral-rich and slightly nutrient-rich habitats. *Scorpidium revolvens* (s.str.) is not a calciphile, but avoids more mineral-rich wetland habitats (thus, even if *S. cossoni*, which is a calciphile, is included in *S. revolvens*, it cannot be considered calciphile).

Among species I am familiar with, species such as *Callicladium haldanianum*, *Calliergon cordifolium*, *Eurhynchium pulchellum*, *Hylocomium splendens*, *Paludella squarrosa*, *Pleurozium schreberi*, *Rhynchostegium megapolitanum*, *Scorpidium revolvens*, *Warnstorfia exannulata* and *W. fluitans* are frequently found with sporophytes in different parts of Sweden, although one gets the impression from the information given that this is rare more or less throughout the ranges of the species. More examples could easily be found, and the user of this book is strongly recommended to consult also other sources for information about the habitat and present day frequency of sporophytes.

The spore photos and descriptions are mostly detailed, and the included genera which have more distinct spore surface patterns should be possible to identify in the light microscope with the aid of the atlas. Unfortunately, many taxa have very similar spores in the light microscope, and in these cases, SEM studies are probably necessary for certain identification, if at all possible. The new SEM photos clearly show the usefulness of this technique. The given spore size ranges that I checked are mostly within the ranges given in floras and revisions, although the user should be aware of the fact that the measurements given in the book are based on only 30 spores from one specimen. This means that the complete size range of the species is usually not covered, and the user must also check other works to get this. The spore size range given for *Scorpidium revolvens* (23.7-30.8 µm) must be due to some mistake, since the size range for this species is 13.5-21.0 µm - also if *S. cossoni* is included within this species.

Despite the critical comments above, I believe that the spore atlas has been greatly improved with the present edition. The study of bryophyte spore structure is still in its infancy, and we know rather little or nothing about the details of the spore structure for most species, which is regretted both by quaternary geologists and other users, such as taxonomists. It is only to be hoped that

more, and more detailed studies of bryophyte spores will be performed in the future. Awaiting this, the present atlas is probably one of the best helps existing for identifying European moss spores. [LH]

Sharp, A. J., Crum, H. & Eckel, P. (Eds.) 1994. The Moss Flora of Mexico. Memoirs of the New York Botanical Garden, Vol. 69. ISBN 0-89327-379-1. 1113 pages, with 809 plates, plus index, in a two-part hard-cover set. Available from: The New York Botanical Garden, Scientific Publications Department, Bronx, New York 10458-5126, U. S. A. (Fax: +1-718-220-6504). Price: US \$ 195:- + postage and handling.

After about fifty years of work, including more than eighteen collecting trips, The Moss Flora of Mexico has now been completed. Starting as a project to assess the affinities between the floras of Mexico and the southern Appalachian Mountains, the final result is a modern flora of an area that is rather exotic to most people. The task of completing this monumental work has been possible thanks to the efforts of more than thirty contributors, and to the funding by Donald Richards and later by the U.S. National Science Foundation.

The Moss Flora of Mexico includes more than 850 species, which are described and illustrated. Keys are provided from the orders downwards (to families, genera and species). There are short overviews of the classes, subclasses and orders, but these are often not sufficient for placing a taxon within the right group, especially if only sterile material is available. This is obviously due to the lack of good circumscriptions of some of these higher taxa, but it also means that it is often necessary to know in which order a specimen belongs before any key can be used. Although usually of little problem to the experienced bryologist, this may be a disadvantage for those users who need it, e.g., as an aid in identification for ecological work. The arrangement of the species is partly traditional and

partly based on more recently published ideas. The illustrations are mostly of high quality and occupy between a half and a whole page for each species. In a few cases, such as for *Campylium stellatum* and *Sanionia (Drepanocladus) uncinata*, the figures seem to have been prepared from untypical material of the species. The descriptions are generally accurate, but I noted that for *Conardia compacta* there was no mention of the frequent occurrence of rhizoids growing from the back of the stem leaf nerve, a feature which aids in identifying this species also in the field. Besides the species already known from Mexico, some additional ones that could be expected to occur in the country are also included, often with rather full descriptions. Further research in the Mexican bryoflora is thus expected and will sure bring several new and interesting finds.

In a flora of this size, mistakes or misprints can hardly be avoided completely. However, from the selected parts that I have studied more carefully, there seems to be few mistakes. The two most serious that I found are in the key to the *Cyrtohypnum* species, where the species are still called *Thuidium* ("T.") and in the altitude given for the find of *Campylophyllum (Campylium) halleri*, which is said to grow at 11,200 m alt in pine forest.

As already mentioned, the Mexican moss flora shows affinities with the flora of the southern Appalachian Mountains, but naturally there are connections also with parts of Central and South America. Several more widespread tropical or subtropical species occurring in Mexico occur also in other continents, but for some species, such as *Levierella perserrata*, the distribution patterns are not easily understood. *Levierella perserrata* is so far known only from central and eastern Africa besides Mexico.

Despite the minor points above, I think the contributors to The Moss Flora of Mexico have good reasons to be proud of what they have accomplished. The flora is certainly a must for anyone dealing with bryophytes from Central

America, or from adjoining parts of North and South America, and should be of great use also to many bryologists from other areas of the world. [LH]

European bryologist: Would your research benefit from a visit to Helsinki?

The European Community (EC) and the Department of Botany, University of Helsinki, have undersigned a contract aiming at enhancing research and European co-operation within the following fields: 1) bryology, 2) lichenology, and 3) monitoring of atmospheric pollution and deposition using mosses and lichens as indicators. The contract recognizes the Department of Botany as a "Large Scale Facility," based mainly on excellent moss and lichen herbaria, good libraries, and high standard of research. According to the contract, the Department of Botany offers a total of 60 man-months for post-doctoral visiting scientists during the period May 1994 - April 1998. All expenses concerning travel, subsistence (e.g., accommodation, food), and research are covered by the financial support (total ECU 100,000) from the EC. Standard research equipment, such as light microscopes and microcomputers, will be provided by the Department of Botany.

The contract presupposes that the visitors must be citizens of an EC member country, or of Sweden, Norway, Iceland or Austria. Selection of visitors to Helsinki will be based on applications. These should include a concise research plan (subject, methods, aims), curriculum vitae, and the suggested duration and time of visit. The selection will be made by a "Selection Panel" set up for this special purpose and consisting of the following persons: Prof. Timo Koponen (project organizer, Univ. of

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Red Book on Bryophyte Collecting

Dear Colleagues,

Today I read the Australasian Bryological Newsletter No. 28, June 1993, in which Allan Fife reported: Bryologist Convicted of Illegal collecting in New Zealand. I am enclosing a xerox copy of this article.

I must confess that I was rather frightened by this article. The same could have happened to me. If I had travelled to New Zealand, I would not have thought about obtaining collecting permits as I would have in tropical countries. And as an editor of an exsiccate series I would have also gathered enough for 50 duplicate specimens. I was also astonished that Allen Fife apparently supports the regulation that it is forbidden to collect bryophytes "on public land", since I have grown up with the right to collect wherever I wanted, with the exception of National Parks (which do not exist in the strict sense in Europe). As well, a fine of \$1190 New Zealand currency (which must be about \$1000 US) seems to be rather high. Illegal hunters and polluters of the environment pay less elsewhere.

I therefore have several proposals:

1. This article should be reprinted in the Bryological Times for information to potential collectors in New Zealand (as a warning). It may also raise discussion about the sense of such regulations.

2. Now I am not sure where else in the world bryophyte collecting is forbidden. For this purpose it would be very useful to have a compilation of all available information concerning:

- restrictions of collecting, whether in preserved areas, national parks, etc., or in general,
- list of conserved bryophyte species in individual countries,
- information where to apply for a collecting permit and what is needed for the application,
- export regulations: where the specimens have to be delivered for pest control, customs, etc.; which forms are necessary; what it costs; and how long it takes,

- regulations on deposit of specimens in national herbaria,
- contact addresses of local bryologists who are willing to help in this regard.

I think it would be worth while to compile such a list for every country, for which such information is needed and available. While this would be perhaps a project for the conservation column, it could also be proposed and discussed at the IBC at the next biennial meeting to get official approval. The information could be gathered and be published in a small "Red Book" for bryophyte collecting. I have expressed several times my hesitation that too many activities in the conservation of bryophytes will finally result in sharp restriction for scientific collecting. Non commercial bryophyte collecting is usually confined to scientific purposes. It will end in unnecessary complications to obtain permits and to export specimens, as it is already the case in several countries. If I, or some of the serious amateur bryologists in the world, take a charter flight to a tropical country and collect here and there along the roadside during a one week vacation, it will be forbidden without having applied for a permit, which an amateur will usually not get (or even be able to get). If I come across an interesting area along a highway and it is preserved, I will not be allowed to take a bit of bryophytes without having applied for a permit several months ago with a curriculum vitae list of publications, passport photograph, number and size of specimens to be collected, detailed explanation of the purpose, and etc. If I come with a paper bag of bryophytes to the airport and want to go through the customs, I have to fill out forms, argue that bryophytes are (not yet!) on the CITES list, argue that my specimens are not those which are conserved, bring them to the veterinary inspection, to the fumigation, show them to the bureaucrats in the research ministry, get stamps, export permits, and etc. This is already reality in several countries. In

Invitation

to a plenary meeting of the European Committee for the Conservation of Bryophytes ECCB

During the constitution meeting of ECCB held in Uppsala in 1990 the board was elected and his main tasks were determined. No further rules were set up. Therefore, the next meeting can involve again an 'ad hoc' circle during the congress 'Conservation of Bryophytes in Europe'.

The board invites all European bryologists, professionals or not, to attend the second meeting of ECCB. It will be held on 6th September 1994 at 8.00 p.m. in the Institute of Systematic Botany, University of Zürich, Botanical Garden, Zollikerstrasse 107, CH-8008 Zürich, Switzerland.

Agenda:

- 1 Report of the chairman
- 2 The next steps of ECCB
- 3 Elections
- 4 Varia

Participants of the congress are supposed to attend. Please let us know if you would like to attend the ECCB meeting without participation in the congress.

E. Urmi

Chairman of ECCB

my own experience, it can take a week to get everything managed only for export. This may be tolerable during a research project but will not be possible during a short stop in a country, on vacations, or for an amateur. If a stone is kicked, it rolls. And the conservation activities of bryologists will make it impossible for themselves to collect in the future. The more conservation activities, the more collecting activities will be killed. The protection of Sphagnum, Leucobryum, and Dicranum in Germany has led to the consequence that these mosses may no longer be used in identification courses, bryophytes courses, plant anatomy or plant physiology courses. Is this what the conservationists want? Perhaps not, but they do not have it under control anymore. If a stone is kicked, it rolls....

Jan-Peter Frahm

The Richard Spruce collections in MANCH

Not only does MANCH have Spruce's own large personal herbarium, together with (and including) sets of his *Hepaticae Spruceanae: Amazonicae et Andinae*, his *Musci Amazonici et Andini*, and substantial lichen collections, but there is also a collection of his letters and maps and other documents which may interest Spruceologists more than bryologists.

The material came to Manchester mostly in 1919, nearly 26 years after his death. Matthew Slater was Spruce's botanical executor and he had inherited Spruce's massive personal herbarium; when Slater died it was W. H. Pearson who ultimately effected the transfer.

The large Spruce collections number over 16,500 items and comprise:

- his personal herbarium of liverworts: 8,264
- additional liverworts such as distributed sets: ~ 700
- his personal herbarium of mosses: ~ 5,000
- additional mosses in distributed set: 289
- his personal herbarium of lichens: ~ 2,000
- documentation such as letters and maps: ~ 300

The liverworts, which form the bulk of the Spruce material, are largely from Spruce's fifteen years in South America (June 1849 to June 1864), but also from his years in the Pyrenees (April 1845 to April 1846) and elsewhere, and also include specimens collected by others. The mosses are more or less equally divided between British and non-British collections, and the lichens are mostly from the Pyrenees. There are also a few flowering plants and ferns. The following data give an indication of the significance of the Spruce liverwort collection in MANCH in the context of the total collections:

D I A R Y Cont'd.

2356, ext 326; Fax (802) 635-7614.

October 2-8. VI Congreso Latinoamericano de Botánica to be held at Mar del Plata, Argentina. Further information from Celina M. Matteri, Museo Arg. Cs. Nat. B. Rivadavia, Av Angel Gallardo 470, C.C. 220, 1405 Buenos Aires, Argentina. Fax: (54) 1 982 4494 or (54) 1 982 5243.

November 24-29. 10th John Child Bryophyte Workshop, Waipoua Forest, North Auckland, New Zealand. Further information from Lisa Forester, Department of conservation, P.O.Box 842, Whangarei, New Zealand.

1995

April 5-12. Spring field meeting at Ambleside, Cumbria. Further information from Peter Bullard. Work address: Cumbria Wildlife Trust, Cumbria, LA22 0BU Phone 05394 32476. Home address: 36 Castle Garth, Kendal, Cumbria LA9 7AT Phone 0539 732699.

August 7-12. Tropical Bryophytes: Biology, Diversity and Conservation. IAB Conference in Mexico City (see BT77). Contact C. Delgadillo, Instituto de Biología, UNAM, Apartado Postal 70-233, Del. Coyoacan, 04510 Mexico, D.F. Mexico, Fax (525)555-1760, email: moya@redvax1.dgsca.unam.mx.

1996

August 4-8. To celebrate the 100th anniversary of the British Bryological Society, a symposium entitled 'Innovations in bryophyte research' will be taking place at the University of Glasgow. Contributions will be invited shortly. The BBS summer field meeting in west will take place immediately afterwards in the west and central Highlands.

- estimate of total plant collections: 2,000,000
- total liverworts: 34,346
- all Spruce liverworts (personal herbarium and *Hepaticae Spruceanae*): 8,971
- of which Spruce liverworts designated TYPE: 924

These figures (as well as those of our foreign Flowering Plants etc.) are on a computer database. A comprehensive account of Manchester Spruce material is given in the chapter *Spruce in Manchester: Manchester Museum Herbarium* (with an appendix on Manchester City Library by Prof. Brian Fox), in the forthcoming volume *Richard Spruce (1817-1893), Botanist and Explorer*, edited by M. R. D. Seaward and to be published jointly by The Royal Botanic Gardens, Kew and the Linnean Society.

Dr. S. R. Edwards, Herbarium, Manchester Museum, The University, Manchester, M13 9PL, UK.

VISTOHELSKI

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Helsinki); Prof. Teuvo Ahti (Univ. of Helsinki); Dr. Ahti Mäkinen (Univ. of Helsinki); Prof. Dr. Jan-Peter Frahm (Univ. Duisburg); and Dr. Harrie J. M. Sipman (Bot. Garten und Bot. Museum Berlin-Dahlem). If considered necessary, visits can be arranged fairly rapidly after approval of application. The applicants will normally be informed of approval or rejection within one month from the date of receipt of application.

Applications should be sent to Prof. Timo Koponen, Department of Botany, P.O. Box 7, FIN-00014 University of Helsinki, Finland. In case of any queries, please contact Johannes Enroth (address as above, fax +358 0 708 4830).

The Bryological Times is a newsletter published bimonthly for the *International Association of Bryologists*. Items for publication are to be sent to the Editors (preferably LH), **except** for those for the regular columns, which may go **direct** to the column editors

Deadlines for material to the *Bryol.* Times will be January 15, March 15, May 15, July 15, September 15 and November 15 with the publication shortly afterwards. Shorter notes may be accepted later if there is still space.

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Send contributions to:

D I A R Y
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July 10-15 (tentative). Workshop on Chinese Bryophytes and Lichens. Place: Shenyang, China. Contact Officers: Cao Tong, Department of Plant Resources, Institute of Applied Ecology, Academia Sinica, Shenyang 110015, China and Lai Ming-Jou, Institute of Landscape Architecture, Tunghai University, P. O. Box 1-4, Sanchung, Taiwan 241.

July 13-27. BBS Summer meeting in Ireland. Based at Ballyvaughan, County Clare, for the first week and Clifden, County Galway, for the second week. Further information from Donal Synnott, Botany Section, National Botanic Gardens, Glasnevin, Dublin 9, Ireland. Phone 353 1374 388.

July 18-28. The 1994 field meeting of the Dutch Bryologische en Lichenologische Werkgroep van de KNNV will be held in SW Carinthia, Austria. The meeting will be based at Weissbriach, c. 15 km W of Villach in the Gailtaler Alpen. Excursions will be extended to the Karnische Alpen, near the Italian border, and to the Kreuzeckgruppe of Hohe Tauern in the north. Further information from Leo Spier, Kon. Arthurpad 8, 3813 HD Amersfoort, The Netherlands, or Othmar Breuß, Naturhistorisches Museum Wien, Botan. Abt., Burg-ring 7, Wien, Austria.

August 7-11. American Bryological and Lichenological Society Annual Meeting will be held in Knoxville, Tennessee. Further information from: Chicita F. Culberson, Department of Botany, Duke University, Durham, NC 27706.

August 26-31. Bryologisch-Lichenologische Arbeitsgemeinschaft für Mitteleuropa, annual fieldtrip in Carinthia, Austria. Details can be obtained from Dr. Adolf Schriebl, A 9412 St. Margarethen 200, Austria.

September 4-9. International Symposium: Endangered Bryophytes II, together with the meeting of the European Committee of Conservation of Bryophytes. Zürich. For information contact: E. Urmi, Inst. für Systematische Botanik, Zollikerstr. 107, CH-8008 Zürich. Phone: (41)1/385.44.41. Fax: (41) 1 385 42 04.

September 9-12. Excursion to Wägital (Schwyz, northern prealps) with the Swiss Bryological and Lichenological Association's annual field trip. Further information from Patricia Geissler, Cons. & Jardin Botaniques, Case postale 60, CH-1292-Chambésy, Switzerland.

September 10-11. Excursion to Schonnen (the Netherlands) with the Dutch Bryological and Lichenological Society to look at coastal dunes. Contact Dr. A. Aptroot, G. v. d. Veenstr. 107, NL-3762 XK Soest, the Netherlands. All DBLS are open for non-members.

September 23-25. Annual General Meeting and Symposium Meeting, Preston Montford Field Centre, Shrewsbury, Shropshire. Further information from Dr. Martha Newton, Department of Botany, Liverpool Museum, William Brown Street, Liverpool L3 8EN, U.K. Phone 051 2070001.

Late September. LeRoy Andrews Foray. The 19th Annual Foray will be held in southern New Hampshire in southern New Hampshire. Further information from: Cyrus B. McQueen, Department of Environmental Sciences, Bently Hall, Johnson State College, Johnson, VT 05656. Phone (802) 635-

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