



a newsletter from
**INTERNATIONAL
ASSOCIATION OF
BRYOLOGISTS**

**The
Bryological Times**

Issue 102

Dec 2000

ISSN 0253-4738

BRYOLOGICAL ACTIVITIES AT THE EGER COLLEGE

Tamas Pócs is describing the bryological activities in Eger during the past two years.
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BRYOLOGICAL TERMS – MORE VIEWS

The discussion on bryological terms continues.

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A Graduate Scholarship is offered for study of peatlands and peat mosses.

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THESES IN BRYOLOGY

Several new theses are presented.

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INFORMATION ON TWO FORTHCOMING WETLAND/ BRYOLOGY EVENTS.

1. Changing Wetlands: new develop- ments in wetland science, Sheffield 2001

There will be a conference at Sheffield, UK, in September 2001 organised by the Mire Research Group of the British Ecological Society, and the Society of Wetland Scientists (SWS). You can find details at <http://www.shef.ac.uk/~g/wetlands>

2. Third International Symposium on the Biology of *Sphagnum*, Uppsala - Trondheim 2002

Following the meetings in Exeter and Québec, the third IAB *Sphagnum* symposium will take place 13-23 August 2002. The plans are to assemble in Uppsala, Sweden, for a one-week excursion covering a range of boreal, alpine and oceanic mires. This will take us to Trondheim, Norway, where the symposium will take place.

The symposium will cover all aspects of *Sphagnum* biology. In addition, the excursion and the symposium will focus on the distribution of *Sphagnum* and the dynamics and conservation of mires.

Organisers: Håkan Rydin, Uppsala University
Kjell Ivar Flatberg, Norwegian University of Science and Technology, Trondheim

Håkan Rydin, Department of Plant Ecology, Evolutionary Biology Centre, Uppsala University, Villavägen 14 SE-752 36 Uppsala, Sweden tel: +46 18 471 2854, fax: +46 18 55 34 19, <http://www.vaxtbio.uu.se/resfold/perslist.htm#mire>,

e-mail address: hakan.rydin@ebc.uu.se

International Association of Bryologists (IAB) is an organisation open for persons all interested in bryophytes. For membership, contact Sandi Vitt, Dept. of Plant Biol., Southern Illinois Univ., Carbondale, IL 62901-6509, USA (svitt@ualberta.ca). Visit also our web site at <http://www.devonian.ualberta.ca/iab/>. *Bryological Times* is issued 4 times per year.

BOOK REVIEWS

Malcolm, B. & Malcolm, N.: *Mosses and Other Bryophytes, an Illustrated Glossary*. 220 pp., ca. 1000 full-color close-ups. Micro-Optics Press, Nelson, New Zealand. ISBN 0-473-06730-7. Available from: Timber Press, Inc., 133 S.W. Second Avenue, Suite 450, Portland, Oregon, 97204, U.S.A, e-mail orders@timberpress.com (in North America); Timber Press, Inc., 2 Station Rd., Swavesey, Cambridge CB45QJ, U.K. (in Europe); CSIRO Publishing, 150 Oxford Dtreet, Box 1139, Collingwood 3066, Australia, e-mail sales@publish.csiro.au (in Australia); Manaaki Whenua Press, Box 40, Lincoln 8152, New Zealand, e-mail mwpress@landcare.cri.nz (in New Zealand). Advertised prices: North America US\$ 39.95, Europe £ 29.99, Australia "about" AUD\$ 67, New Zealand "about" NZ\$ 80.00

I had seen the brochure of this book and it had promised a lot. Shortly afterwards, the packet that contained the thing itself arrived. Opening the packet and first paging through the book really made my day! I mean, it is just full of goodies.

Quite a few bryophyte floras, at least larger ones, have glossaries, some of them illustrated with line drawings. The contents of the glossaries and the quality of the illustrations vary, but most of them are good or at least okay. Yet, this book is something else! It has more than 1500 cross-referenced entries, nearly 1000 color close-ups and microphotographs plus some line drawings and color paintings. The authors have included any alternative meanings a term may have. This is very important, because over the centuries that bryophytes have been studied more or less scientifically, the meanings of many terms have changed and many terms have been - and are still being - used inconsistently by various authors. Some of the entries are rarely used and some I have in fact never seen before in descriptions, but that only adds to the value of this book. It is, as far as I understand, exhaustive or very nearly so.

The authors, Bill and Nancy Malcolm, have managed to combine technical skill with artistic impression in a beautiful way. It is not said anywhere in the book, but it is my understanding that they are professional microphotographers, and that really shows in the illustrations. In a note the authors state that "the colors of some of the microscope views are "false", produced by re-fluoresced ultraviolet light or by polarizing and differential interference optics". The technical details go behind my horizon, but the results are admirable. Almost without exception, the "false" coloration that the authors have decided to use for any one picture makes the displayed characters clearer, easier to see and easier to comprehend.

Nothing is perfect though, so just a couple of critical observations. On p. 63, the term *dendroid* is defined as "having a growth habit like a tree" and, on p. 88, the term *frondose* is defined as "a densely branched shoot system that's flattened into a single plane and resembles a fan, umbrella, or fern". This leaves the distinction unclear, particularly because the hepatic *Hymenophyllum flabellatum* is said to be dendroid and the moss *Hypnodendron colensoi* is said to be frondose. To my mind, the former, with its strongly flattened fronds (sic!) is certainly frondose, and I have always thought of *Hypnodendron* as a very distinctly dendroid moss. The real distinction between frondose and dendroid is that the latter has a radial pattern of branching, whereas the former has

a distichous pattern of branching. *Canopy former* is given as a synonym of dendroid, but this is an ecological rather than morphological usage. Dendroid bryophytes form canopies but so do frondose species, if the fronds are horizontal rather than upright (relative to substrate).

The terms diplolepidous (p. 67) and haplolepidous (p. 97) have been used inconsistently in literature. The wrong interpretation of diplolepidous is "a peristome with two distinct rings of teeth" and the wrong interpretation of haplolepidous is "a peristome with only one ring of teeth". Fortunately, the correct interpretations are also given as alternatives. True, diplolepidous peristomes are often double and haplolepidous ones single, but that is another matter.

Bryology has recently been blessed with quite a few important and pioneering works, a fact that implies progress - we, the bryologists, seem to be getting somewhere. Any significant bryological work may be said to be a must to a serious bryologist. However, this beautiful piece of bryology and photographic art by Bill and Nancy Malcolm is a MUST - even if you're really not that serious about it!

Johannes Enroth

Boiko, M. F.: *Bryophyta in the coenoses of the steppe zone of Europe*. Ailant, Kherson, 1999. 160pp., illustrated. In Russian, conclusions in English. ISBN 966-7403-62-3. Advertised price: \$ 8.00 + postage. Available from: Boiko, M. F., Kherson Pedagogical University, Kherson, 73000, Ukraine.

The structure of bryophyte communities in all types of steppe zone coenoses of Europe, which include 310 species of liverworts and mosses, is established. A classification of life-cycle types of mosses is developed and the following categories are recognised: fully polysporogonic, fully monosporogonic, reduced (vegetative), mixed (vegetative-sexual). These types of life cycles are interpreted as adaptations of mosses to unfavourable habitats in the steppe zone. The results on sexual conditions show that in the 310 species of the steppe zone, dioicous species predominate (53,2%), monoicous species are fewer (37,9%), and polyoicous comprise only 7%. Only 1,9% are sterile species (reproducing only vegetatively).

Flora dei muschi d'Italia

Sphagnopsida - Andreaeopsida - Bryopsida (Iª parte)

Carmela Cortini Pedrotti

The bryophytes of Italy present notable floristic biodiversity, among the highest in Europe. During the twentieth century, bryological research in Italy received a considerable boost with investigation of territories that had been little explored or entirely unexamined, and with the publication of numerous regional lists as well as checklists of the mosses and liverworts. As a result of this intense research activity the need for an Italian bryological flora has become increasingly evident.

Prof. Carmela Cortini Pedrotti's Flora dei Muschi d'Italia, the first part of which is being published today, represents the first work of its kind in Italy. Because of the peculiarity of the Italian territory in general, and the Mediterranean area in particular, this resource constitutes a fundamental work in the European editorial panorama and an indispensable instrument for future study.

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Literature

Column

ed. Johannes Enroth

BRYOLOGICAL TERMS—EVEN MORE CRITICALLY SEEN

With regard to the article on bryological terminology that appeared in the last issue of *Bryological Times* (101, July 2000), I regret that I must disagree with such an intelligent and industrious bryologist as J.-P. Frahm, for whom I have the most sincere respect and admiration.

Biological science is necessarily burdened by a lot of arcane terminology simply because there are no analogs in daily human speech for all of the various parts of animals and plants. But this does not mean that it is inappropriate to use the same term for structures that have the same general appearance, or function, in organisms that are unrelated. It is done commonly and without any implication of phylogenetic relatedness. Yet in Frahm's view "terms must always be different for analogous organs." This is folly.

To cite one egregious example, birds, bats, pterosaurs, insects, maple seeds, and airplanes have wings, yet it is well understood that these are all "analogous" structures. I transmit this message from the east wing of the Natural History Building of the Smithsonian Institution, yet no one expects the edifice to take off and fly. To maintain that it is misleading to refer to the leaves of mosses as leaves because they are formed by the gametophytic generation of the plant is as absurd as saying that we should not refer to the leaves of books or tables because they do not photosynthesize. No one confuses a space capsule with a medicine capsule; these are merely descriptive terms, over which moss capsules doubtless have priority.

The terms femur, tibia, and tarsus were first used in Latin for

parts of the leg of humans and quadruped vertebrates but they were appropriated by entomologists for segments of the "legs" of insects. It would be ridiculous to suggest that entomologists now stop using those terms because the structures are not homologous.

Some of Frahm's substitute terms would probably create even worse problems and confusion. For example, the term "phylloid," which he would substitute for the leaves of bryophytes, is already in use elsewhere in botany for leaf-like structures that are not true leaves, e. g. the chlorophyllous outgrowths of the mature koa tree (*Acacia koa*) of Hawaii. Because such phylloids have evolved more than once in phanerogams, so the term is already used for structures that are not homologous even without attaching the term to the leaves of bryophytes.

One would still have to comprehend the meaning of the terms "leaf" and "stem," for example, in order to understand all of the previous literature in bryology. Thus the only effect of using substitute terminology would be to make bryological literature even less accessible to those outside the field. The sacrifice of effective communication solely for the purpose of satisfying a nicety of homology should not be endorsed.

Finally, I find the term *cum fructibus* to be endearing precisely because it now seems so absurd. It makes me smile every time I see it. But it pervades bryological collections and literature and I do not think that bryologists should take themselves so seriously that they cannot continue to enjoy their own little anachronistic inside joke.

Storrs L. Olson

PROBLEMS WITH CUSTOMS AND HOW TO SOLVE THEM

Over the past few years I have had to visit the customs office in Bonn almost every time I received parcels with herbarium specimens. The reason is that a new regulation requires parcels from overseas to be checked by customs directly after arrival by ship in Hamburg or by plane in Frankfurt. (Before, they were sent to a local customs officials who knew what we were expecting and released the parcels). If they are not satisfied with the customs declaration, they send the parcel on to the local customs, where the parcels must be opened.

Customs claims the following points, which are principally correct, although German customs may in this respect be too draconian:

1. Usually herbarium material of bryophytes is mailed with a customs declaration indicating the contents as "dried herbarium

specimens", "dried plants for scientific study" or something similar. In fact, this declaration is insufficient. When plant material is mailed worldwide, a CITES certificate is obligatory. Therefore (officially) an exact declaration of the species with a list of species names is required. For customs officials, dried plants could be cacti, orchids or any other protected species. Thankfully bryophytes are not (yet) in the CITES list. (The situation will be really funny, if that happens). If the customs declaration were altered to „dried bryophytes“, this would probably lead again to unnecessary questions regarding which customs rates have to be applied to bryophytes. Perhaps an indication that bryophytes are not on the CITES list would help.

2. Usually herbarium material comes with the indication: "no commercial value". This phrase may be correct in some countries, but I have been told several dozen times by German customs "that everything has a value, else it could be thrown away". So they insist on the indication of a value. I do not know how customs in other countries react, and German customs practice may be the worst example in the world, but basically they can live better with an indication of a value of \$10 (which is below the duty free limit of \$75).

Therefore it seems that a customs declaration indicating "Dried herbarium specimens – bryophytes: no CITES required, value \$10" could solve most problems.

Jan-Peter Frahm,

Botanisches Institut, Meckenheimer Allee 170,
D 53115 Bonn, e-mail frahm@uni-bonn.de

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The first part of the *Flora dei Muschi d'Italia* covers the classes Sphagnopsida and Andreaeopsida and the first part of Bryopsida: a total of 582 species, 35 families and 128 genera. For every genus and an analytical key is provided and for each species there is a detailed diagnosis including information on its ecology and distribution and an original and analytical iconography. Particular attention is paid to the most recent critical nomenclatural and taxonomic studies.

The volume is completed with the taxonomy of the species described, a useful and exhaustive glossary of scientific terms and a bibliography for all the citations in the text.

Antonio Delfino Editore - Roma, 2001

THESES IN 3 BRYOLOGY

ed. Bill Buck

As reported in *The Bryological Times* (99: 17. 1999), the International Association of Bryologists has decided to begin a repository of bryological theses. These theses will be housed in the Library of The New York Botanical Garden. They will be available via interlibrary loan. The NYBG Library online catalog (CATALPA) may be viewed at: <http://www.nybg.org/bsci/libr/Catalog.html>. As theses arrive, bibliographic data and a brief synopsis will be published in this column (see examples below). Bryological theses for any degree, covering any aspect of bryology in any language, will be included. Please send theses to Bill Buck at the address above. Please refer to the preliminary notice (cited above) for information on financial assistance from IAB for reproduction of theses.

Castro, Nívea Maria Carneiro Farias. 1997. Bryopsida do Parque Nacional de Sete Cidades, Piauí, Brasil. Dissertação, Mestre em Ciências, Universidade Federal de Pernambuco, Recife, Brazil. ix + 85 pp. In Portuguese with English abstract. Current address of author unknown.

This master's thesis is a floristic survey of the mosses from the cerrado and riverine forest of Sete Cidades National Park in the municipalities of Piripiri and Piracuruca, Piauí, Brazil (4°05-15' S, 41°30-45' W), an area of 6221 ha at 100-300 m. Twenty-two taxa were found, including *Weisiopsis nigeriana* (Egun. & Olar.) Zand., new to Brazil. A general key is included, as well as descriptions of the species. Most species are illustrated.

Germano, Shirley Rangel. 1994. Briófitas epíxila do Engenho Água Azul, Timbaúba-PE (Destaque para a classe Hepaticopsida). Dissertação, Mestre em Ciências, Universidade Federal de Pernambuco, Recife, Brazil. 124 pp. In Portuguese. Current address of author unknown.

This master's thesis is a study of the epixylic bryophytes of the Água Azul sugarcane plantation, in the municipality of Timbaúba, Pernambuco, Brazil (7°35' S, 35°20' W), at an elevation of 210 m. Special emphasis is given to the hepatics. The 30 species of mosses found are keyed, but not treated further except for specimen citations. The 25 hepatics are keyed, described, and illustrated. Ecological data is presented on the presence of the different bryophytes on logs at various levels of decay.

Kellar, Claudette. 1999. Epiphytes as a habitat for invertebrates in a cool temperate rainforest at Cement Creek, Victoria. Honour Thesis for Bachelor of Science (Honours), Faculty of Science and Technology, Deakin University, Clayton, Victoria, Australia. v + 100 pp. In English. Current mailing address of author unknown <claudette.kellar@sci.monash.edu.au>.

This bachelor's thesis studied the invertebrate and plant components of the epiphytic communities on *Nothofagus cunninghamii* and *Eucalyptus regnans* in a pocket of cool temperate rain forest in Victoria, Australia. Vertical distribution of both epiphytes and invertebrates was sampled. Twenty species of epiphytes were identified from the *Nothofagus* host (with *Dicranoloma menziesii* dominant), while only nine species of epiphytes (with *Bazzania involuta* dominant) were found on the *Eucalyptus*. On both trees, Acari were the most abundant invertebrates, followed by Collembola. Taxon richness and abundance were greater lower on the trunks of both species.

Kirkpatrick, Helen Elizabeth. 1990. Resource competition between two co-occurring species of *Polytrichum*. Ph.D. dissertation, University of Michigan, Ann Arbor, MI. x + 153 pp. In English. Current address of author unknown.

This doctoral dissertation presents the data from a study of the competition between *Polytrichum commune* and *P. juniperinum*

growing under a patchy oak-hickory canopy in southeastern Michigan. The populations were recorded photographically. Their abundances were related to incident light levels and site-specific evaporation rates. Each species negatively affected the abundance of the other and the taller species, *P. commune*, appeared to be competitively superior to the shorter species, *P. juniperinum*. Also, *P. commune* had equal or higher net photosynthetic rates than *P. juniperinum*. However, in climatically harsher environments, especially in habitats with low soil moisture, *P. juniperinum* was competitively superior.

Konstantinova, Nadezhda Alekseevna. 1998. Основные Черты Флор Печеночников Севера Голарктики (На примере сравнительного анализа флоры печеночников Мурманской области). Ph.D. dissertation, Biological Faculty, Moscow State University, Moscow, Russia. Synopsis of thesis booklet, 35 pp. In Russian. Current address of author: The Polar-Alpine Botanical Garden, Kola Science Centre, Russian Academy of Sciences, 184230 Kirovsk 6, Murmansk region, Russia <nadya_k@aprec.ru>.

This booklet, whose title roughly translates as: Base line liverwort flora of the northern Golarctic (An example of comparative analysis of the liverwort flora of the Murmansk region), is a published synopsis of a doctoral dissertation. The last five pages of the booklet contain a bibliography of Konstantinova's published works.

Kučera, Jan. 1999. Taxonomická studie skupiny *Didymodon rigidulus* (Bryopsida, Pottiaceae) v Evropě. Ph.D. Thesis, Faculty of Biological Sciences, University of South Bohemia, České Budějovice, Czech Republic. [iii] 120 pp. + 3 appendices (5 + 10 + 38 pp.) In Czech. Separate English summary booklet: A taxonomic study of the *Didymodon rigidulus* group (Bryopsida, Pottiaceae) in Europe. 16 pp. Current address of author: University of South Bohemia, Faculty of Biological Sciences, Branišovská 31, CZ-370 05 České Budějovice, Czech Republic <kucera@tix.bf.jcu.cz>.

The first time I noted this doctoral thesis I had only seen the English abstract booklet. Now that I have seen the entire thesis, I thought it best to repeat it. The thesis presents a taxonomic treatment of the *Didymodon rigidulus* group in Europe. Nine taxa were considered. Morphological data were subject to multivariate analyses. Isozymes of the taxa were also examined. *Didymodon glaucus*, *D. verbanus* and *D. subandreaeoides* (syn. *Grimmia andreaeoides*) are specifically distinct from *D. rigidulus*. Also specifically distinct, but more closely related to *D. rigidulus*, are *D. validus*, *D. acutus*, and *D. icmadophilus* (syn. *Barbula abbreviatifolia*). *Didymodon mamillosum* is synonymized with *D. rigidulus*. An undescribed species in the western Mediterranean region needs additional study.

Long, David M. 1978. Ecology and distribution of mosses in a portion of the San Gabriel Mountains [California, U.S.A.]. M.S. Thesis, California State Polytechnic University, Pomona, CA. xiii + 239 pp. In English. Current address of author unknown.

This master's thesis provides a detailed ecological and distributional look at the mosses in a portion of the San Gabriel Mountains, Los Angeles County, California. It is based on historical collections, literature, and the author's collections (823 specimens). Bryofloristic evidence is the basis of a postulated Pleistocene glacial episode. The moss flora of the study area is comprised of 80 taxa.

Madsen, Barbara Jean. 1987. Interaction of vegetation and physical processes in patterned peatlands: A comparison of two sites in upper Michigan. Ph.D. dissertation, University of Michigan, Ann Arbor, MI. ix + 84 pp. + 10 unpaginated figures. In English. Current address of author unknown.

For this doctoral dissertation, two patterned peatlands from the Upper Peninsula of Michigan with similar water chemistry were compared. Peat stratigraphy and pollen analysis were used to trace the history of the two sites. Freeze/thaw cycles may maintain or accentuate the patterns, but cannot explain their formation or alignment. Coalescence of hollows by oxidative peat degradation to form elongate pools may be a secondary process, but radiocarbon dates of flark sediments indicated no measurable degradation. Rather, the requirement for water flow, the magnitude of seepage force, and the low bulk density of surface peat may account for the patterns.

McIntosh, Terry T. 1986. The bryophytes of the semi-arid steppe of south-central British Columbia. Ph.D. Thesis, University of British Columbia, Vancouver, BC, Canada. vii + 345 pp. In English. Current address of author: #3-1175 E. 14th Avenue, Vancouver, British Columbia, Canada V5T 2P2 <ginkgo@direct.ca>.

This doctoral thesis provides keys and descriptions to the 37 genera and 77 species within the study area. Four species are newly reported for North America (*Crossidium rosei*, *Phascum vlassovii*, *Pottia wilsonii* and *Pterygoneurum kozlovii*), and 10 taxa are new to Canada. Distributions of the taxa in the study area are discussed at local and world levels.

Milne, Josephine. 1997. Studies of the biology of four species of *Dicranoloma*. Ph.D. Thesis, Faculty of Science and Technology, Deakin University, Clayton, Victoria, Australia. xix + 190 pp. In English. Current address of author: Royal Botanic Gardens, Birdwood Ave., South Yarra, Victoria 3141, Australia <pmilne@rbgmelb.org.au>.

The reproductive biology of four species of *Dicranoloma* was investigated, *D. billardierei*, *D. dicarpum*, *D. menziesii* and *D. platycaulon*. The population dynamics of all except *D. dicarpum* was also studied. Although archegonial initiation followed that of antheridia, archegonia took less time for maturation so that both were mature at approximately the same time. The different species had maturation dates during different seasons. All species had asexual reproduction, primarily through leaf fragmentation. Increase in shoot number was primarily due to production of lateral branches rather than recruitment of new plants by spore germination or generation from leaf fragmentation.

Sá, Patricia Sheyla de Almeida. 1995. Aspectos florísticos e ecológicos das briófitas do Riacho Coité, Timbaúbe-PE. Dissertação, Mestre em Ciências, Universidade Federal de Pernambuco, Recife, Brazil. x + 59 pp. In Portuguese with Eng-

lish abstract. Current address of author unknown.

This master's thesis is a study of the bryophytes in a deciduous forest along the Coité stream, located in the Água Azul sugarcane plantation (see abstract above), Pernambuco, Brazil. A total of 49 species were found, 21 hepatics and 28 mosses. The frequency of each species, as well as its ecological niche, was determined.

Valdevino, Jurandir Alfredo. 1994. Bryopsida do Bituri Grande, Brejo da Madre de Deus - PE (Brasil). Dissertação, Mestre em Ciências, Universidade Federal de Pernambuco, Recife, Brazil. xii + 149 pp. In Portuguese with English abstract. Current address of author unknown.

This master's thesis is a taxonomic survey of the mosses of a remnant of seasonally subdeciduous tropical forest in the municipality of Brajo da Madre de Deus, Pernambuco, Brazil (8°09'S, 36°23'W). The study area was 700 ha, and ranged from 900 to 1120 m. A total of 65 species were identified, with *Dicranella perrottetii* (Mont.) Mitt. and *Macromitrium hymenostomum* (Mont.) Grout reported as new to Brazil. The species are keyed, and for each ecological notes and specimen citations are provided.

Veltman, Annelize. 1998. Contributions to the systematics of the southern African Metzgeriaceae (Hepatophyta). Thesis, Magister Scientiae, University of Pretoria, Pretoria, South Africa. v + 117 pp. In English with Afrikaans summary. Current address of author unknown.

This master's thesis is a treatment of the genus *Metzgeria* in southern Africa. A total of 13 species are recognized, five of which are considered undescribed. The genus is described based on local species and a key to the species is provided. Each species is described, illustrated, and mapped for southern Africa.

GRADUATE SCHOLARSHIP

SUN GRO HORTICULTURE CANADA LTD. has initiated a \$7,500.00 (CAN) graduate scholarship for the study of peatlands and peatmosses. This scholarship is available annually for the study of any aspect of boreal peatlands and peatmoss ecology, but current priorities include studies that address peatland restoration, chemical properties of Sphagnum, indicators of peatland qualities, and carbon management.

Sun Gro Horticulture Canada Ltd. produces peat and value-added products from peat including professional and retail growing mixes. The company has processing plants in 14 locations throughout North America and has annual sales of about 150 million dollars. In the Province of Alberta this company has taken a leading role in sponsoring conservation action plans for provincial peatlands and in restoration, including sponsorship of the first restoration research project in Canada. Additionally, Sun Gro has been a strong sponsor of the first two International Sphagnum Symposia in Exeter, UK and New York, USA.

Sun Gro is committed to establishing a long term environmental research fund for peatlands in boreal western Canada that will ensure wise use of our wetlands resources. Persons interested in pursuing a graduate degree in one of these areas and who would like to apply for this scholarship should contact:

Dale H. Vitt, Department of Plant Biology, Southern Illinois University, Carbondale, Illinois 62901, USA

RECENT DEATHS

ALAN CYRIL CRUNDWELL (1923-2000)

his academic life

Address given by David Long at his funeral at Headley Church, Hampshire 7 September 2000

Alan Crundwell devoted his academic life to bryology which is the study of mosses and liverworts. He became, during his career, a renowned world authority on mosses and his name became associated with outstanding scholarship and a meticulous and perceptive approach to the taxonomy of some of the thorniest groups.

As far as I can tell his interest in bryophytes arose during his student years at Oxford in the early 1940's, where he was taught by the great E.F. Warburg known as 'Heff', himself a leading authority on both flowering plants and mosses. Perhaps because of the war, he did not pursue post-graduate research but, following his wartime service in the Ministry of Agriculture, moved north in 1949, to take up a lectureship in the Botany Department of the University of Glasgow where he remained in a long and distinguished career until retirement in 1983.

He quickly realised the potential in Scotland for pursuing what became both his hobby and his profession: bryology. Before long he was exploring Dunbartonshire, Argyll, Ross & Cromarty and Sutherland and making important bryological discoveries. In 1945 he had joined the British Bryological Society (the BBS) of which he became a leading member for the rest of his life. In Glasgow he was remote from most other British bryologists, but through the BBS he was able to keep in close contact with his friends and colleagues, particularly on meetings throughout Britain and Ireland, which he regularly attended.

During his career he travelled widely in search of bryophytes, both in the British Isles and overseas. In 1954 he made two overseas trips: to the Algarve in the spring and in the summer to Svalbard (Spitsbergen) with an Aberdeen University expedition. Perhaps this early trip to the arctic stimulated his interest because, between 1958 and 1980, Sweden and other parts of Scandinavia, became his regular summer destination with Dr Elsa Nyholm of Lund. He became fluent in Swedish and a leading authority on Scandinavian mosses, expertise he used to advantage when bryologising in Scotland. Other overseas trips were to Zambia, Malawi and Uganda in 1969, and two major collecting trips to Turkey, with Elsa Nyholm, in 1971 and 1972. In later years he became interested in the Macaronesian islands, and joining the annual spring field courses run by his department to the Canaries enabled him to make many new discoveries.

Alan was a great teacher, and many of us in the BBS benefited enormously from his attendance on BBS meetings. He was a careful and meticulous collector, often on his hands and knees looking for tiny mosses, contending with both rain on his glasses and hair obscuring his vision. I joined the BBS in 1973, when Alan was 'Recorder for Mosses' in the Society, whose task it was to vet specimens of new county records. In 1972, very much a beginner, I sent him some potential new records and received the following reply "I have looked at your mosses a good deal more promptly than usual. Most of them really are miserable scraps. Sometimes one cannot help it I know, but most often one can." That letter hit home quite hard and taught me a very important

THEO ARTS (1942-2000)

Theo Arts died at his home in Sint-Job-in-t'-Goor, Belgium, on the 11th of October, only 58 years old.

He graduated as a chemical engineer and had just retired from a successful but demanding career at a chemical plant in Antwerp to devote himself entirely to bryology. A keen naturalist, he named his first bryophytes in 1977, and five years later published his first paper, on *Octodiceras fontanum*, in *Dumortiera*, a local botanical journal. This was the start of a list of more than 80 publications, many in the major bryological journals. Theo was one of the founding members of the Flemish Bryology Group in 1978 and was its president from 1989 to 1994.

He was very interested in the minute bryophytes of disturbed places. Rhizoidal tubers of acrocarpous mosses became the main focus of his studies, and he worked on Bryaceae, Splachnobryaceae and *Gymnostomiella* both in Europe and worldwide. Although first active in Belgium and Europe, his interest in tropical bryophytes was raised by visits to South Africa, Ecuador, Costa Rica and Réunion. In the last few years he had started working on a bryophyte flora of his beloved Réunion, to be published in 2005. Most of his publications were illustrated by his own accurate and beautiful drawings.

Theo was entirely a self-made bryologist, and during field trips was always ready to introduce novices to the more difficult groups and to name difficult collections. He will be remembered by everyone who knew him.

Herman Stieperaere, Nat. Bot. garden of Belgium, Meise

lesson which has stood me in good stead ever since. A year later, following another batch of mosses, "Thank you for your letter and specimens. Don't ever include a *Philonotis* and say you don't think it should take me too long!" *Philonotis* is another very difficult group of mosses.

Those two quotes tell us a lot about Alan's approach to Botany. His standards were very high, and he expected others to aspire to similar standards. He was meticulous, and took much time and trouble in looking at specimens before drawing conclusions. He explained his decisions in great detail in letters. This approach made him ideally suited to research on the intractable moss genus *Bryum*, which few others have dared to study. He researched an interesting phenomenon in *Bryum*, that under the ground many species produce 'tubers' which are distinctive for each species and serve to propagate the plants. Along with Elsa Nyholm, in 1964 they published a landmark paper on these tuber-bearing *Bryum* species. Subsequently Alan took on two research students in the 1970's from Bangladesh and Malaysia who successfully extended this work to other parts of the genus *Bryum*.

Alan was a great collaborator. He wrote papers with at least 14 other bryologists, of whom Elsa Nyholm was the most regular. His interest in moss 'tubers' led him to collaborate with Harold Whitehouse of Cambridge, who extended these studies to other groups of mosses, particularly those in arable fields. Harold (who also died quite recently) and Alan were working on yet another paper on tuber-bearing *Bryum*'s when they died. As well as untangling difficult groups of mosses, Alan wrote many 'floristic' papers: lists and reports of mosses of countries such as Turkey, usually resulting from his own fieldwork, often in collaboration with others. In 1981 he and several others published a new checklist of the mosses of Europe. His papers spanned 50 years, the

Continued on page 7

BRYOLOGICAL ACTIVITIES AT THE EGER COLLEGE, HUNGARY, DURING THE PAST TWO YEARS

Tamás Pócs

Research Group for Bryol. of the Hungarian Acad. of Sci., Eszterházy College of Education, EGER, pf. 43, Hungary, H-3301

It has already been two years since our research group, supported by our Academy of Sciences, was established. At more or less the same time, our former Botany Department was split into two parts: the Department of Botany in a strict sense, where taxonomical, ecological and microbiological disciplines are taught, and the Department of Plant Physiology. The Department of Botany is headed by Prof. SÁNDOR ORBÁN, the Department of Plant Physiology by Prof. L. MUSTÁRDY, and finally the Research Group by me. Bryological research is conducted in all three parts, although to different extents. This account aims to bring of these bryological activities to the attention of the International bryological community.

Department of Botany: SÁNDOR ORBÁN has just finished his revision of the African *Calymperaceae* and intends to publish it in the *Bryophytorum Bibliotheca* series. He also continues his studies on the life strategies of bryophytes. ERIKA KÓNYA examines the spatial pattern and the dynamics of bryophytes by microcharting in different habitats. ZOLTÁN NAÁR studies the mycorrhiza-like fungi in tropical and south temperate *Hypopterygium* species to clarify their impact on the life of the moss. TAMÁS PÓCS, in co-operation with BERNARD OTTO VAN ZANTEN (Groningen University) and HARALD KÜRSCHNER (Freie Universität, Berlin), investigates the taxonomy of bryophytes and the ecology of the desert-like cryptogamic communities on the loess cliffs in the Danube basin. To the present, studies have been carried out in Hungary, Serbia, Romania and Bulgaria, with the participation of bryologists from the countries concerned. These studies hopefully will be extended. ANDRÁS SZABÓ intends to prepare a world monograph of the epiphyllous liverwort genus *Letolejeunea* (*Lejeuneaceae*).

Department of Plant Physiology: SÁNDOR DULAI (in co-operation with ISTVÁN MOLNÁR from Debrecen University) investigates the responses of the photosystem II (PS II) driven electron transport to light and heat stress in some tropical bryophytes growing in different microhabitats. MARIANNA MARSCHALL examines the photosynthetic capacity, carbohydrate metabolism and nitrate-

reductase activity of bryophytes in relation to their stress tolerance.

The **Research Group** concentrates on tropical bryology. ANDREA SASS GYARMATI deals with the Palaeotropical *Ptychanthoideae* (*Lejeuneaceae*) and has begun to revise the genus *Lopholejeunea*. GABRIELLA KIS, curator of our moss herbarium, deals with the African *Daltoniaceae* and works on a taxonomic revision of the genus *Daltonia*. Both take part also in the above mentioned loess project. TAMÁS PÓCS, is revising the genus *Aphanolejeunea* for Flora Neotropica (in collaboration with ANDREA BERNECKER, The University of Ulm and San José, Costa Rica), *Aphanolejeunea*, *Cololejeunea* and *Colura* for the Flora of Western Melanesia (in co-operation with SINIKKA PIIPPO, University of Helsinki), and finally the genus *Frullania* for the Flora of Australia project. He also takes part in various African floristic works and revisions.

To achieve the above goals, members of the Research Group have, during the past two years, taken part in many expeditions and collecting trips in different tropical countries. These include Madagascar (T.Pócs with A.Szabó), Sao Tomé, Gabon, Tanzania, Seychelles, Réunion, Mauritius, Australia (T.Pócs), and Vietnam (T.Pócs, Gabriella Kis). In December 2000, T. Pócs will travel to Venezuela, and together with the staff and students of the Universidad de los Andes, Mérida, will attempt to climb Mt. Roraima from its Venezuelan side in order to investigate its bryoflora. The enumerated field activities resulted in more than 12,000 numbers (altogether about 50,000 specimens) of collected bryophytes, which in most cases are shared with the co-operating specialists and herbaria of the host countries.

Bryology is represented also in our teaching activities. We had or have 5 PhD students investigating different bryological subjects. Furthermore, courses on the Taxonomy of Bryophytes, Bryogeography and Tropical Biology have been held in the Department of Botany. Our PhD students have taken part in the popular Tropical Bryology courses at Helsinki University and the Author has lectured in this series.

first in 1950 and the last this year.

In the British Isles, Alan made many important finds, often on BBS meetings, both of species new to Britain (at least sixteen) and species new to science (six). One of his most important discoveries was of a spectacular new Scottish liverwort, *Herberta borealis*, long overlooked by others. Another, a tiny moss, informally known for years as 'The Moss' was eventually named, after painstaking research, as *Anoetangium warburgii* after Alan's teacher Heff Warburg. Alan and Heff had planned to write a new British Moss Flora but this was not to be. After his retirement in 1983, Alan returned to the south of England, where he followed other pursuits such as gardening but continued some research as well as recording of North Hampshire bryophytes, the results now awaiting publication.

Throughout his career, Alan was a leading member of the BBS. He was Recorder for Mosses from 1968 to 1976. He served as Editor of the Society's Journal in 1966 and 1967, and was elected President in 1974 and 1975. He was elected as an Honorary member of the BBS at the Cardiff meeting in September 1985. In 1988 he was elected an Honorary member of the Finnish Bryological

Society, a mark of the esteem with which he was held in Scandinavia.

The most memorable week I spent with Alan was in 1978, when the Nordic Bryological Society asked Alan to organise a field meeting in Scotland, so that the Scandinavian members could see something of Scotland's rich Atlantic bryophyte flora. Alan took this very seriously indeed: he arranged the venue as Ardtornish Castle on the Morvern peninsula, Scottish home of the legendary Cambridge botanist John Raven, and close to many rich habitats for bryophytes. Alan's reputation attracted not only Scandinavian but an international array of 25 bryologists, including Rudy Schuster from the USA and Wilf Schofield from Canada. I assisted Alan in leading the excursions of what turned out to be an outstanding field meeting. Alan's reputation was fully vindicated.

Alan was a very warm and kind person with a mischievous sense of humour. He was very entertaining company and could converse on a wide range of subjects. His passing will be felt very deeply by bryologists in many countries around the world; we his friends and colleagues in Britain feel proud and honoured to have known and learned from him.

Diary

The diary is open for all bryological events. Please send information, preferably by email, to the editor.

Courses

NONE ANNOUNCED

Meetings

2001

February 16-23. BBS Meeting in Tenerife. Leader Roy Perry, 35 Cardiff Road, Dinas Powys, Vale of Glamorgan CF64 4DH, UK alanrperry@aol.com. This week-long excursion will be based on Playa de las Americas in the SW corner of the island of Tenerife.

April 4-11. BBS Spring Meeting on the Isle of Wight. Leader: Mrs Lorna Snow, Ein Shemer, Upper Hyde Farm Road, Shanklin, Isle of Wight, PO37 7PS. Tel. 01983 863704 e-mail: snow@shemer.freemove.co.uk

June 24-27. Planta Europa 3. Conference on Conservation of Plants in Europe including session on lower plants and fungi. Information from conference@plantaeuropa.org or http://www.plantlife.org.uk/html/partnership_planta_euro.htm

July 1-2. The 4th European Conference on the Conservation of Bryophytes held in Průhonice near Prague, Czech Republic. Information and registration: Jiří Váňa, Department of Botany, Charles University, Benátská 2, CZ-128 01 Prague, Czech Republic. email: vana@natur.cuni.cz

July 14-18. NBS Excursion and Annual Meeting, Finse, Norway. More information later.

September. Changing Wetlands: new developments in wetland science. Sheffield. Details from <http://www.shef.ac.uk/~g/wetlands>

2002

January. IAB Meeting in Lucknow, India. Details will be announced in a coming issue of the Bryological Times.

August 13-23. Third International Symposium on the Biology of *Sphagnum*, Uppsala—Trondheim. Information från Håkan Rydin, Dep of Plant Ecol, Evol Biol Centre, Uppsala Univ, Villavägen 14, SE-752 36 Uppsala, Sweden tel: +46 18 471 2854, fax: +46 18 55 34 19, e-mail address: hakan.rydin@ebc.uu.se. See also BT 102 p. 1.

The Bryological Times, founded in 1980 by S. W. Greene (1928-1989) is a newsletter published for the *International Association of Bryologists*. Items for publication are to be sent to the Editors or Regional Editors, **except** for those for the regular columns, which may go **direct** to the column editors

Editors

Lars Söderström, Dept of Botany, Norw. Univ. Sci. & Techn., N-7491 Trondheim, Norway. FAX +47 73596100. Email: Lars.Soderstrom@chembio.ntnu.no

Henrik Weibull, Dept Ecol. & Environ. Sci., Swedish Agric. Univ., Box 7072, S-75007 Uppsala, Sweden. FAX +46 18673430. Email: Henrik.Weibull@emc.slu.se

Terry Hedderson, Botany Dept, Univ. Cape Town, Private Bag, 7701 Rondebosch, South Africa. FAX +27 021 650 4041. Email: thedders@botzoo.uct.ac.za

Regional Editors

N. America: René J. Belland, Devonian Bot. Gdn, Univ of Alberta, Edmonton, AB T6G 2E1, Canada. e-mail: rbelland@gpu.srv.ualberta.ca

Latin America: Inés Sastre-De Jesús, Dept of Biol, Univ of Puerto Rico, P.O. Box 5000 Mayagüez, Puerto Rico 00681-5000. Email: I_sastre@rumac.upr.clu.edu

C & E Asia: Cao Tong, Inst of Appl Ecol, Chinese Acad of Sci, P.O. Box 417, 110015 Shenyang, Liaoning, P.R. China. Fax: +86 2423 843313. Email: IFP@iae.syb.ac.cn

SE Asia: Ben Tan, Dept of Bot, School of Biol Sci, National Univ of Singapore, Singapore 119260. Email: dbsbct@nus.edu.sg

Australia and Oceania: Ray Tangney, Dept of Bot, Univ of Otago, PO Box 56, Dunedin, New Zealand. Fax. +64 3 479 7583. Email: ray@phyton.otago.ac.nz

Column Editors

Conservation column: Tomas Hallingbäck, Threatened Species Unit, Swedish Agric Univ, P.O. Box 7007, S-75007 Uppsala, Sweden. Fax: +46 18 673480. Email: tomas.hallingback@dha.slu.se

Literature column: Johannes Enroth, Dept Ecol & Syst, P. O. Box 7, FIN-0014 Univ of Helsinki, Finland. Fax: +358 9 191 8656. Email: enroth@kmus.helsinki.fi

Student profiles: Jennifer Doubt, Dept Biol Sci, Univ of Alberta, Edmonton, AB T6G 2E9, Canada. Email: jdoubt@gpu.ualberta.ca

Theses in Bryology: William R. Buck, Inst of Syst Bot, NY Bot Gdn, Bronx, NY 10458-5126, U.S.A. E-mail: bbuck@nybg.org

Tropical Bryology Column: Tamás Pócs, Eszterházy Teachers' College, Dept of Bot, Eger, Pf. 43, H-3301 Hungary, e-mail: colura@gemini.ekt.hu

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