

The BRYOLOGICAL TIMES

Newsletter of the International Association of Bryologists

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The First National Symposium of Chinese Bryology

by Benito C. Tan

The first Chinese bryological symposium was held in Beijing, China, from August 26 to 28, 1992. The meeting was organized to review the state of Chinese bryology in connection with the founding of the Chinese Association of Bryologists (CAB) whose incumbent president and vice-president are P.-C. Wu (Beijing) and X.-J. Li (Kunming) respectively. About 45 participants representing 25 institutions from all over China, including the far away provinces of Xinjiang, Nei (Inner) Mongol, and Yunnan, attended the symposium. Forty three papers and abstracts were received, but only nineteen were selected for presentation at the meeting. The official language of the symposium was Chinese, and I was the only foreign participant.

After one whole day of registration on August 25th, the symposium formally opened in the morning of August 26th, with the delivery of congratulatory messages by high ranking officials of the Chinese Academy of Sciences. I was asked to read the felicitous message sent by Dr. P. H. Raven, Director of the Missouri Botanical Garden, after the speech by Mrs. Z.-L. Wan, the wife of late Prof. P.-C. Chen, who spoke briefly about her personal satisfaction and joy in seeing so many bryologists present at the meeting.

After the formalities, Prof. P.-C. Wu of the Botanical Institute in

Beijing gave the first talk in which he outlined the differences in the research development in bryology between China and Japan in the past fifty years on the basis of publications taken from the Journal of the Hattori Botanical Laboratory. In conclusion, Prof. Wu urged his fellow Chinese workers to redouble their efforts in their bryological studies in order to catch up with the fast advancing world standard. He further suggested that the science of Bryology in China should diversify and become multidisciplinary in approach, with attention given to new areas of research, such as cytogeography, chemotaxonomy, bryosystematics, Antarctic bryology, and also on the practical uses of bryophytes.

Thereafter Prof. C. Gao of the Institute of Applied Forestry Ecology in Shenyang reported that the manuscripts for volume one of Bryoflora of China (Chinese edition) had been completed as of July this year, and that the work is now in press. According to him, volume one includes 527 species and infraspecific taxa, 94 genera, and 13 families (from Sphagnales to Pottiiales), of which 4 genera are new to China. About 95% of the described taxa are illustrated.

Other senior speakers in the morning session were Prof. X.-J. Li of Kunming Botanical Institute who enumerated the economic uses of bryophytes.

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Note from the editor

With the closing of 1992, an end has come to the production of The Bryological Times in Holland. From 1993 onwards the editorial office of the IAB newsletter will be located in Scandinavia where editing will be done by Lars Hedenäs (Stockholm) and Lars Söderström (Umea), with the assistance of Henrik Wellbull. All items for publication should from now on be sent to: Lars Hedenäs, Swedish Museum of Natural History, Department of Cryptogamic Botany, Box 50007, S-10405 Stockholm, Sweden.

I would like to take the opportunity to thank my co-editors, Guido van Reenen, Paula Greene and Jan-Peter Frahm, as well as all the column editors of The Bryological Times for their help and support during the period that I have served as editor of the newsletter. I trust that The Bryological Times will continue to flourish under the renewed editorship and urgently request all bryologists to keep on supporting the newsletter by sending items for publication.

Happy New Year!

S. Rob Gradstein

A Generator of Pulsed Magnetic Fields for Biological and Physiological Studies on Bryophytes

by Krzysztof Kolon and Jan Sarosiek

[Techniques column. Send contributions to the column editor Malcolm L. Sargent, School of Life Sciences, University of Illinois at Urbana-Champaign, Urbana, Ill. 61801, U.S.A.]

The biological effects of magnetic field activity, about which little is still known, necessitate increased study on organisms exposed to disturbed natural magnetic fields, especially those related to industrial installations (Barnothy 1969, Mikolajczyk 1990). Investigations of the effect of constant magnetic fields on animals, humans and plants have been pursued by many scientists (Wadas 1978, Delgado 1985) and we have begun such studies on bryophytes (Sarosiek and Kolon 1991). It has also been established experimentally that pulsed magnetic fields affect the growth rate of cells (Date, Kaneko and Fukada 1986) but the effect of magnetic impulses on plants is still practically unknown.

The bryophytes, because of their hardiness, small size and rate of vegetative reproduction comply with the criteria for suitable experimental plants in laboratory tests employing magnetic impulses of various intensities. A prototype device for generating magnetic impulses has been designed and is described here. It is suitable for research on experimental cultures of bryophytes such as *Riccia fluitans*, *Ricciocarpus natans*, *Marchantia polymorpha*, *Lunularia cruciata*, *Fontinalis antipyretica* and *Scapania undulata*. It is advisable to cultivate the bryophytes in nutrient media that have been verified to yield optimum growth; the media are different for various species of the Bryophyta (Sargent 1988).

The designed device functions as follows: a collector circuit is supplied with a constant voltage of about 20 V and a transistor base circuit is supplied with sinusoidal voltage from a transformer which is, in turn, regulated by

means of a potentiometer. Current impulses flow through the transistor and correspond with the positive halves of the sinusoidal wave form. The voltage period lasts 20 milliseconds, and therefore the frequency of impulses is 50 Hz which equals the frequency of electrical current feeding industrial installations, and at the same time, the frequency of impulses possibly emitted by them. The passage of collector current in the transistor begins just as the base voltage reaches about 0.6 V. Similarly the current is cut off when its voltage drops to about 0.6 V (Fig. 1A). Impulses of collector current and therefore also impulses of the magnetic field, last less than 10 milliseconds. When the impulses of base current are large so that the base voltage is higher, then the impulse duration of collector current is somewhat longer, because the increase and abatement velocity of the base voltage is greater then and it reaches the mentioned value of 0.6 V much quicker. As a result the duration of the magnetic field impulse is shorter for

weaker impulses and longer for stronger ones. The greater the impulse power, the more distinctly rectangular are the impulses. When a constant current of about 100 mA flows through the transistor, the shape of the electrical current and magnetic field impulses is almost rectangular. Their duration is then about 8 milliseconds (Fig. 1B).

Collector current impulses flow through two coils, connected in series and placed a appropriate distance apart. The poles of the magnetic field are contained within the area between the coils and outside this space the field declines quickly as a function of distance, thereby generating no interference in measuring instruments. The device can work as long as it is desired without necessity for switching it off and is characterized by a tolerance for alterations in ambient temperature. Failure-free functioning throughout a year has been recorded with temperature fluctuations from +5°C to +35°C.

Fig. 1. Impulses of the electric current (A) and the magnetic field (B)

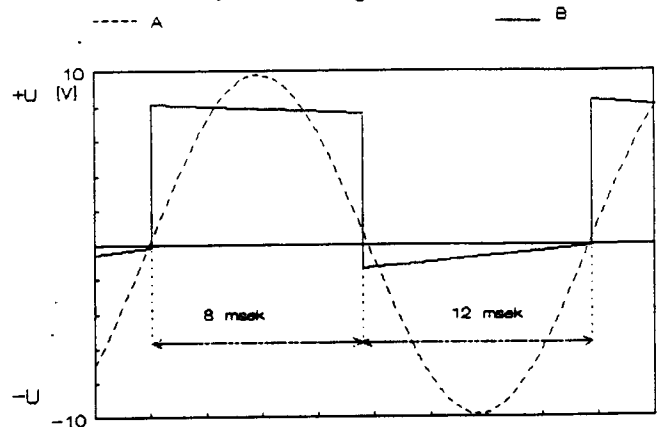
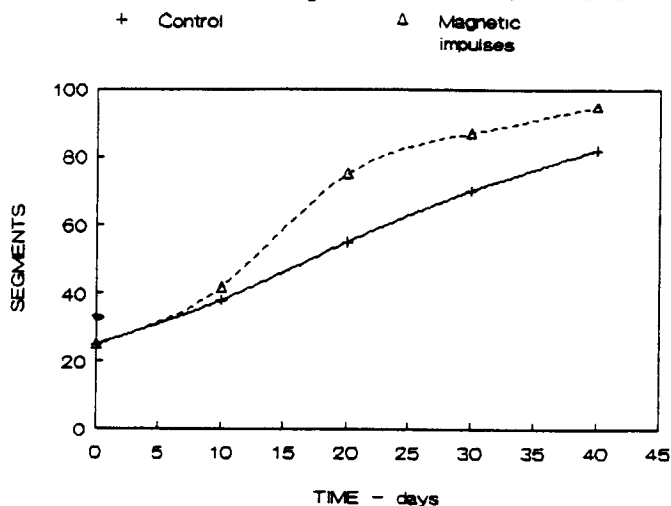


Fig. 2. Influence of pulsed magnetic fields on number of segments of *Riccia fluitans*



The setting of desired values for magnetic field intensity in an impulse is accomplished by means of a potentiometer. The transistor is protected by a diode, which attenuates self-induction impulses of the coils during transistor switching. The additional ohmic reluctance, about ten times larger than the ohmic resistance of the coils, improves the shape of impulses in their lower part, i.e. it attenuates coil oscillations when the amplitude of self-induction impulses is low and the diode reluctance towards conductivity is still strong. The system is protected from the grid side by a cutout of 0.315 A and is supplied with an electric current of 220 V and 50 Hz. The maximum value of magnetic field intensity depends on the distance between the coils. The most suitable distance in experiments with bryophytes is 10 cm which enables one to obtain any mean field intensity within the range from 0 to 7.5 Oersteds with the maximum value of the impulse being approximately 2.5 times larger.

Vessels with the bryophytes should be put on a glass plate between the coils. The temperature of the air between the coils does not increase even when the field intensity is maximum, because the coils become only slightly warm. Fluctuations of coil temperature do not exceed 0.1°C. Distance between

the coils, as well as the way in which they are fastened, permits free access of air without ventilation devices and unrestricted lighting of the research objects.

The pulsed magnetic field generated between these Helmholtz-Gaugain coils is homogeneous (Kohlrausch 1956) as confirmed by intensity measurements. The mean values of the intensity of the pulsed magnetic fields were measured by a teslometer with a hallotron (Siemens EA 218). It is worth mentioning that the device is very simple in its construction and is composed of 15 elements only. This simplicity makes it reliable and failure-free functioning of the device for over a year has been recorded with a wide range of changes in air humidity.

We have established experimentally that pulsed magnetic fields exert an influence on liverworts *in vitro*. Magnetic impulses (mean field intensity about 6.3 Oersteds) increase the number of segments in experimental populations of liverworts, e.g. *Riccia fluitans* (Fig. 2). Pulsed magnetic fields may be an important ecological factor.

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Proceedings of the III Simposio Latinoamericano de Briología, July 13-17, 1992, Mexico-City

The proceedings of this symposium have been published in vol. 6 of the journal "Tropical Bryology". It contains 20 contributions on neotropical bryology on 208 pages. Copies can be ordered at a price of DM 54 (subscription price DM 36/US\$25, for subscribers from tropical countries DM 18/US\$ 12.50). Send orders to J.-P. Frahm, Universität Duisburg, FB 6, Botanik, Postfach 101503, 4100 Duisburg, Germany.

Bryology at the Royal Botanic Garden Edinburgh, Part I

by David G. Long



Bryology at Edinburgh has a long history but over the years research has been intermittent, and often a part-time occupation of botanists specialising in other fields. A former Director, the mycologist Douglas M. Henderson, reinstated 'overseas' bryological research in 1955, after many quiet years with only Scottish and British work, by publishing a series of papers on Turkish and Middle Eastern bryophytes. Two current staff members George C. G. Argent and David F. Chamberlain completed bryological doctorates but now work on Angiosperms. David Long is currently Head of Bryology with research shared Himalayan vascular plants and bryophytes, assisted by Sally Rae who undertakes curation and S.E.M. work.

The bryophyte herbarium at Edinburgh, though not large, contains much important historical material from Europe, America, Asia and Australasia, dating back to the time of Robert K. Greville (1794-1866), the founder of cryptogamic research in Edinburgh between 1816 and 1855. His contacts with William Hooker and many other prominent contemporary botanists led to Edinburgh's acquisition of important bryophyte collections from Archibald Menzies, William and Joseph Hooker, James Dickson, J. C. Schleicher, Olof Swartz, Thomas Drummond, Nathaniel Wallich, Richard Spruce and other early collectors. These historical collections are rich in type material, for example from New Zealand, India and Nepal (Long, 1979).

Since Greville a number of bryologists have worked at Edinburgh, but with interests primarily on British bryophytes, such as John Sadler (1837-1882), James McAndrew (1836-1917), William Evans (1851-1922) and William Young (1865-1947). The last of these however undertook a huge curatorial

reorganisation of the collections, to their great benefit (Young 1932, 1934). Another enlightened step taken by Young was to enlist the help of H. N. Dixon who studied the moss herbarium resulting in a number of new taxa, especially from Asia (Dixon, 1938).

In recent years collections have steadily expanded, by exchange with a range of institutes such as New York, Missouri and Helsinki, and by collections on Edinburgh-run expeditions, especially to the Middle East, Southern Africa and Southeast Asia. Active fieldwork in the British Isles by Chamberlain and Long since 1970, and other parts of the world (Arctic, Europe, Macaronesia, Southern Africa, Yemen etc.) by Long, has also resulted in steady expansion of the herbarium to the current level of around 120,000 specimens. The herbarium has benefitted from many donations and bequests, notable being the herbaria of Ursula K. Duncan and the African herbarium of Eustace W. Jones.

Historically, the Sino-Himalayan region has been one of Edinburgh's most important specialisms, both horticulturally and taxonomically. Recent projects on vascular plants include the *Flora of Bhutan* and monographic work on selected groups such as *Rhododendron*. These projects have included field-expeditions, on several of which Long has been able to make sizeable bryological collections: to Nepal in 1989, 1991 and 1992; to Sikkim and Darjeeling in 1992; to Bhutan in 1975, 1979 and 1982; and to Yunnan in 1990. In Part II, details of this series of expeditions will be given, and some of the bryological results. Further expeditions are planned over the next few years.

It is hoped that these recent collections, together with early material from the Himalayan region (Bell, Hooker, Wallich, etc.) will allow expansion

of bryological research projects, both monographic and floristic, already initiated by Long on a small scale. The recent expeditions have turned up many new and interesting discoveries from the region, and provided new material for many of the critical genera requiring revision in eastern Asia, such as *Andreaea*, *Bryoerythrophyllum*, *Sematophyllaceae* and thalloid Hepaticae. Much of this new material has been named to genus, or (especially Hepaticae) to species. Specimens (including duplicate material in return for identifications) are available for critical study by other specialists, and can be specially collected on future expeditions if requested. Some sets of specimens will become available for exchange for tropical material.

In the short term, research will focus on revision of *Asterella*, spore morphology of selected thalloid liverwort genera, and floristic reports of significant new discoveries of both mosses and liverworts in the Sino-Himalayan region. In the longer term, the primary aim is to expand the collections and research on bryophytes particularly of Asia, including a contribution to any relevant bryological projects such as the *Bryophyte Flora of China*, and to extend work on Marchantiales to utilise modern taxonomic methodology.

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Comment on Janice Glime, Stability or Pedagogy - or the need for better access to systematic information

by Patricia Geissler

The difficulties in comprehending the frequent nomenclatural changes, recently exposed by Janice Glime in her Ecology Column [The Bryological Times 69/69: 1-2, 1992], suggests this topic to be of general interest. What is a name? Currently we understand it as the designation given to a biological entity by a specialist, who has investigated the organism in great detail. Or ideally we would image it to be like that. But in reality a name merely reflects our present (imperfect) knowledge. For better delimitation, a good systematist takes into account all available data, from paleontological to biohistorical, from morphogenetical to biochemical evidences and many more. As mentioned by Dr. Glime, experts in these fields may use different names because they restrict their research to particular phenomena in which the name of the organism investigated is of secondary importance. Practicability of communication would indeed be increased if nature were composed of stable, invariable items which the human mind could put into fixed slots. But fortunately, our environment is living and dynamic and, accordingly, so is biological systematics.

Be this as it may, stability of names is certainly a topical question, which is intensely discussed at present, not so much on the ground of scientific reasons but mainly for economic ones (see: Hawksworth (ed.), *Improving the Stability of Names: Needs and Options*. Regnum Veget. 123, 1991). Nomenclature is regulated by the International Code of Botanical Nomenclature, which has been established to facilitate comprehension and to standardize minimum requirements for taxonomic defini-

itions. This Code is nothing but an instrument for better communication. Several factors, however, have complicated its application: e.g., the difference between the starting points of modern nomenclature in 1753 and the publication of the first Code in 1905; typification of names published prior to the introduction of compulsory holotype citation in 1958; and the principle (VI) of retroactivity. Nomenclaturists might disagree with this enumeration. To this I might just cite the example of Nees van Esenbeck, who certainly would have presented the text of his "Naturgeschichte Europäischer Lebermoose" (1835-38) differently had he known that we have to list all the names which he used to describe mere ecological variation within taxa as valid taxonomic entities.

Correctly applied, there is only one name available for each taxonomic rank. However, many taxonomic decisions as rank attribution or heterotypic synonyms cannot be free of a certain degree of subjectivity. Often, as "consumers", we trust the results of colleagues. The generic delimitations in Mniaceae in all modern treatments follow T. Koponen, because his arguments were convincing. On the other hand, there are regional traditions in taxonomy, such as the recognition in Europe of the genus *Schistidium* Brid. which is generally included in *Grimmia* Hedw. in North America.

One point raised by Janice Glime seems very important to me: availability of information. Generally, in bryology we are better supplied with Indices than in many other fields of botany. Index Muscorum (1958-1969)

is a critical list of names in which one definite combination per taxon is retained. Index Hepaticarum does not indicate preferred names but in the later parts edited by Geissler & Bischler it indicates whether epithets are valid and legitimate. For both Indices supplements appear regularly in Taxon and a 25 year Supplement to Index Muscorum was recently published (Crosby et al. 1992, *Index of Mosses*). One of our goals in the completion of the Index Hepaticarum data bank with the re-edition of the volumes published by Bonner, is to supply critical lists based on recent monographs. But, nowadays, who dares to play "Almighty" deciding on the taxonomy of a whole class of plants?

My answer to Janice Glime's question about the possibility of attaining taxonomic stability would be that *stability will never be achieved*; freezing names would be the death of a dynamic science in constant progress. Pedagogy, or, as I would interpret this term, better access to new results in systematics, could be improved. It could be a task of IAB to inform their members, e.g. in The Bryological Times, on publications with taxonomic novelties sooner than in literature list of bryological journals or in the supplements in Taxon. For the Nomenclatural Session of the Tokyo Congress 1993 compulsory registration of new names will be proposed. Another proposal will deal with a list of *Names in Current Use*, i. e. a list of available generic names (if accepted). This provision should avoid delving old obscure publications for earlier names. The Bryological Times could also be the place to debate these important changes proposed for Tokyo [needless to say that I would greatly welcome

contributions on this important issue, ed.]. The computer column of the Bryological Times has already provided much help and service for better communication. Future development in electronics will certainly accelerate our access to information. Some literature lists are already available on networks. Hopefully data banks like Index Muscorum or Index Hepaticarum could soon be open for consultation. Restrictions are perhaps less due to technical reasons, than to financial difficulties.

These lines do not claim originality. They simply want to be reminders that nomenclature plays the role of an auxiliary science. We should see to it that it retains this status. Just as citizens should be able to protect their rights without legal assistance, I believe that botanists capable of taking taxonomic decisions should be able to implement this without strenuous manipulations.

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Bryophytes leave no surface untouched

Bryologists from Kumaun University, India have discovered a bryophyte community consisting of eleven species of mosses and one hepatic growing on an abandoned leather boot (!) in the densely forested area of Khaprad, district Naini Tal (Himalaya), India, at an altitude of about 2200 m. The community consisted of the following species: *Brachythecium cameratum*, *Bryum* sp., *Claopodium pellucinerve*, *Cryptoleptodon flexuosus*, *Didymodon recurvus*, *Fissidens bryoides*, *Frullania* sp., *Pohlia* sp., *Rhynchostegium vagans*, *Thuidium cymbifolium*, and *Zygodon viridissimus*. [Reported by S.D. Tewari, G. Pant & S. Joshi, Kumaun University, Naini Tal, India].

The 4th meeting of the European Committee for the Conservation of Bryophytes (EECB) in Funchal, 14-15 March 1992

by Edi Urmi

[*Conservation Column*. Send contributions to the column editors Thomas Hallingbäck, Dept. of Ecology, Swed. Univ. of Agric. Sciences, Box 7072, S 750 07 Uppsala, or Edi Urmi, Institut für Syst. Botanik, Zollikerstr. 107, CH 8008 Zürich]

Following the invitations of Cecilia Sérgio the members of the board of the EECB met in the Botanical Garden of Madeira at Funchal on 14 and 15 March 1992. The lovely surroundings gave the participants an opportunity to have a look at some of the vascular plants of the Madeiran Flora during the breaks between sessions.

The main topic dealt with was the *European Red Data Book Project*. As reported earlier, this project concerns the preparation of a Red Data List of European bryophytes and a European Site Register for Bryophyte Habitats of international interest. A letter will be sent to bryologists in all European countries to ask for nominations of important sites, based on certain selection criteria [this has in the meantime been done by Nick Hodgetts, Secretary of the EECB]. About 50 most important sites are to be selected out of the candidate list and a data sheet is to be produced for each of the sites. This work as well the preparation of the Red Data List of species is to be carried out by a contractor. A proposal for financial support of this project has been submitted to the World Wildlife Fund [and has in the meantime been approved and partially funded]. The board will probably seek additional support from other sources as well.

Most of the time was devoted to the preparation of a draft version of the Red List of European Bryophytes, based on a preliminary Census of the occurrence and status of the species in the different European countries (*sensu* Flora Europea). All European species of mosses and about one third of the hepatics, totalling nearly 1400 taxa, were considered, species by species, for inclusion or exclusion in the Red List. The following categories were recognized:

1. *Species definitely to be included in the Red List*. About 20% of the European species were considered to belong to this category.
2. *Species definitely to be excluded from the Red List* (not endangered nor rare). About 40% of the European species belong to this category.
3. *Species which should probably be included* (likely to be endangered or rare at the European level), and
4. *Species which should probably be excluded*. About 40% of the species belong to categories 3. and 4.

After this hard work the members of the board were happy to be introduced to the Madeiran bryophyte flora by Cecilia Sérgio and Susanna Sa Fontinha, during two fine days of excursions. All participants are very much obliged to them for the excellent organization of the meeting and the fieldtrips.

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tes in China, and Prof. R.-L. Hu of East China Normal University in Shanghai who discussed the role of bryophytes in the biological education in China, stressing the need of educating a new generation of Chinese bryologists.

The afternoon session was devoted to special lectures by four invited speakers. Prof. S.-X. Hu of the Center of Ecological Study in Beijing presented her research work on the Antarctic bryophytes conducted at the Chinese Station on King George island. This was followed by Prof. Y.-L. Zhou of the Biology Department, Beijing Normal University, who discussed the various techniques employed in his investigation of bryophyte chromosomes. Prof. Zhang of the Botanical Institute in Beijing gave a broad review of the spore morphology of bryophytes at the levels of both light and scanning microscopy in relation to the spores and pollen morphology of pteridophytes and spermatophytes, while Prof. Ho reviewed the current information about the secondary metabolites and special chemical compounds of bryophytes.

The entire second day (August 27th) of the symposium was allotted to the presentation of submitted papers. Of the 19 presentations, 9 dealt with bryophyte floristics and biogeography, 3 on bryophyte ecology, 2 on applied bryology, 2 on bryochemistry, 2 on bryometric and one on medicinal bryophytes. Half of the speakers are Master of Science graduates who are less than 35 years of age, a promising sign for the bright future for Chinese bryology.

A half-day visit to the herbarium and garden of the Botanical Institute in Xiangshan at the outskirts of Beijing was scheduled in the morning of August 28th. While most of the participants went on the tour, the senior bryologists stayed behind for a closed door discussion of important matters pertaining to the two Bryoflora of China projects (Chinese and English editions). I took the opportunity to report to the Chinese participants about the progress and problems encountered in the Bryoflora of China (English edition)

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MEETINGS

SYMPOSIUM ON NEOTROPICAL MONTANE FORESTS

The New York Botanical Garden and Aarhus University will co-sponsor a Symposium on "*Neotropical montane forest: biodiversity and conservation*" at the New York Botanical Garden, 21-25 June 1993. Emphasis will be on the taxonomic and ecological richness of the humid montane forests of the tropical Andes as well as conservation of the biodiversity in that area. Speakers will present important data on plant families and genera (phanerogams as well as cryptogams) and vegetation types centered in the neotropical mountains, addressing topics of their diversity, speciation, evolution, distribution and conservation.

The lectures will be held at the New York Botanical Garden whereas meals and dormitories will be available at nearby Fordham University. The facilities of the Garden's Herbarium (5.4 million collections) and Library (over 1 million items) will be fully

available during the time of the symposium. Most talks will be 20-30 minutes in length. The proceedings will be published in book form after peer review of the papers, and manuscripts will be requested from the speakers prior to or at the time of the meeting to ensure timely publication.

The organizing committee is composed of James L. Luteyn (chair, New York), Steven P. Churchill (New York) and Henrik Balslev (Aarhus). A detailed information packet concerning application, housing etc. will be available early December 1992. If you have not already responded and are interested in presenting a talk or poster, or would like to receive the information packet, please contact: Dr. James Luteyn, Neotropical Montane Forest Symposium 1993, New York Botanical

Request

Charles Whitehill, 1905 NW 10th St., Gainesville, Florida 32609, U.S.A., graduate student at the University of Florida, is looking for a copy of R.M. Schuster's *Hepaticae and Anthocerotae of North America, Vol. 1 and Vol. 4*. Anyone who has a copy for sale please contact him.

Herbarium Labels

A first Herbarium label program running under MS-Windows has been developed according to suggestions by J.-P. Frahm. It allows the use of all fonts available under Windows, has a free defineable number and length of lines, prints any number of copies, automatically loads the last label (for small changes) and can print a border. The program can be ordered

from Michael Neuhaus, Opperhuser Str. 76, W-5992 Nachrodt-Wiblingwerde, Germany, at a price of DM 30/US\$20. Payment by cheque.

New Exsiccata for sale

A new series of Exsiccata, entitled *Bryophyta Africana Selecta* (editors: Tamás Pócs and Ryszard Ochrya), is being offered for sale. It is anticipated to publish about one centuria (100 numbers, in four fascicles) per year; the first centuria has appeared in 1992. Herbaria which have regular exchanges with KRAM and with EGR will receive free sets of the exsiccata. At present there are about 12 sets available for sale. The price is US \$ 200,- per centuria.

Please send your orders to Dr. Tamás Pócs, Esterhazy Teachers' College, Dept. of Botany, Eger, Pf. 43, H-3301 Hungary.

Report of the activities of the IAB Computer Committee

Jan-Peter Frahm and Brian O'Shea

1. IAB Software Library

The requests for copies of diskettes from the software library has decreased noticeably. The software needs seem widely to be fulfilled by requests from the software library in previous years, the better availability of programs, purchase of programs, or low cost software. It can, however, be concluded from the small interest also in strictly botanical applications, which cannot be replaced by commercial software (such as programs for herbarium management, collection storing etc.) that most IAB members are using their computers merely for word processing. The saturation effect is also visible from the fact that (except for updates to new versions) no more programs for botanical purposes have been developed in the recent past. A noteworthy exception are orders from Eastern and third world countries such as Poland, Russia, Argentina or India. For those members, and to offer as wide a selection as possible, the software library has been enlarged by personal acquisitions to more than 440 diskettes.

The catalogue has been continuously updated and is available on disk and by electronic mail.

Because of the high number of programs, a catalogue of selected programs confined to botanical applications has been compiled. This file contains program descriptions in more detail, including number of files, date, size of the program, programming language, name and address of the author, description, conditions, references etc. This list has been made available to ASK, the Academic Software Cooperation of the University of Karlsruhe, Germany, which has included the data in an information and retrieval system for scientific software accessible by Internet. In addition, the file was offered in BioNews to the computer networks and distributed by e-mail to nearly more than 80 botanists around the world.

In a similar way a special catalogue for Windows-applications has been compiled.

The software library was further announced in the newsletter "Herbarium News" and the journal "Life Sciences Educational Computing" in Great Britain. The intention (as with the announcement in the BioNews) was to make not only the software library but also the IAB known outside the society.

For easier access to the software library and to save time in copying and mailing programs, the botanical applications have been loaded in compressed form on one of the host computers of the University of Duisburg. For details see note under 2.

The access by most universities to international computer networks has lead to the usage of such facilities for fast file transfer around the world. Whereas the activities of the software library are a continuation of an institution founded as early as 1987, the recent developments in computer activities make use of international networking.

2. IBIS, the International Bryological Information System

The intention was to make bryological data accessible online and worldwide. For this purpose, all text and data files included in the software library were installed on a Convex computer of the University of Duisburg. In this way it is possible to look for bryological data at any place in the world at any time, to get information within seconds during scientific work, or to download files for use at ones own desktop. In this way the facilities for a worldwide bryological data collection are provided. The amount of data available at present is, however, limited. The reason is that larger volumes of data stored on disk are not made available by the authors. Although many colleagues are using data provided by others, they are not always willing to provide their own files. In general, the tendency to share information amongst colleagues seems not to be well developed amongst bryologists.

Access to IBIS is so far confined to members of the IAB to make membership in this society more attractive. The usage of this service is not particularly high since only a relatively low number of IAB members have access to electronic networks, although this is easily possible for most colleagues at universities or related institutions. IBIS is also accessible through commercial networks such as Compuserve, and this service can also be used by computerised amateur bryologists.

3. BRYONET

The idea for a bryological news-system was developed by Gillis Een in Stockholm and explained in a special paper in the Bryol. Times. From 1992 on, Bryonet is being run at the University of Duisburg. Although the subscribers of Bryonet are not many (30 at present), this introduction of a bryological news systems shows what can be done. So the development is

probably ahead of present needs but ready for the future.

Bryonet distributes users' questions (e.g. for literature references), discussions on special subjects as in a bulletin board system and information. For example, the death of Dr. Hattori was announced at the same day.

4. Publications in the Bryological Times

So far over 50 items have been published by the computer column. Although recent contributions have increasingly dealt with electronic networking which is perhaps not of interest to all readers, it will provide stimulation for the future. Several letters to the column editors concern contributions of the past years - apparently they are used as a source of information even years later.

5. Scripts

Several papers dealing with computer applications in botany have been prepared which can be obtained by e-mail, on disk or as outprint:

- * a Guide to Botanical Software for MS-DOS computers, part 1: Public Domain and Shareware, 29 pp. 1991 (as printout, on disk or by e-mail)
- * IBIS, the International Bryological Information System, 1991 (by e-mail, on disk and as printout)
- * A Guide to Computer Applications in Botany, 1992 (only printout)
- * List of Windows3 Programs available through the IAB Software Library (on disk)
- * IAB Software Library catalogue (disk, e-mail)

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project.

Later that afternoon, the group reconvened for a general business meeting. The agenda included the preliminary preparation for the projected meeting/symposium of International Association of Bryologists (IAB) to be held in Beijing in 1997. Several themes for the 1997 meeting were suggested, and the one in favor is "Bryology in the year 2000."

At the end of the afternoon session, three resolutions were approved: 1) that the proceedings be published with English abstracts by CAB as a special volume by the end of this year; 2) that the CAB will hold similar national conventions at least once every two years at various places inside China; and 3) that a workshop designed for graduate students or beginners be organized in 1993 in Shanghai by Prof. R.-L. Hu and his associates. If possible, foreign colleagues going to the International Botanical Congress in Japan in 1993 be invited to give lectures to the workshop participants.

The evening was devoted to the observation of the 86th birthday of Mrs. Z.-L. Wan who herself was an accomplished bryologist now retired. At the birthday party, I was asked to offer my comments about the just concluded meeting. I candidly said that the meeting was a great success because it was participated by many young bryologists. I politely suggested that the young Chinese workers should strive to specialize in either hepaticology or muscology in their career, instead of laboring to study the two groups of bryophytes in equal depth. A division of labor would allow China, in my opinion, to progress faster and achieve sooner its goals in developing all areas of bryology.

Truly, I believed that the symposium was a good documentation of the current status of bryology in China. I returned to the Farlow Herbarium with a better understanding of the research problems of Chinese bryologists and impressed by the good quality of research conducted by young Chinese

bryologists. Some of them reside in distant provinces of China where access to good herbaria and library collections is often problematic. Yet, the results of their research presented at the symposium were remarkable. Furthermore, during the open forum, the poignant questions asked by young participants and the heated arguments that followed revealed a sufficiently broad and strong background in bryology among the new generation of Chinese bryologists. It is important that they be given a chance to grow professionally and benefit from further contacts with outside colleagues and institutions.

China, with its rich and diverse bryoflora, is indeed an ideal place to host an international symposium. To do so would demand our Chinese colleagues to master further the English as a scientific and symposium language.

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The Bryological Times, founded in 1980 by Stanley Wilson Greene (1928-1989), is the newsletter of the *International Association of Bryologists*. It is published in Edmonton (Canada) and distributed from Albany (USA), Canberra (Australia), Edmonton (Canada), Eger (Hungary), Geneva (Switzerland), Hiroshima (Japan), Moscow (Russia), Praha (Czechoslovakia), St. Louis (USA) and Umea (Sweden).

Items for publication in *The Bryological Times* are to be sent to the new editor, Lars Hedenäs, Swedish Museum of Natural History, Department of Cryptogamic Botany, Box 50007, S-10405 Stockholm, Sweden, except for those for the regular columns, which may go direct to the column editors.

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Editor from no. 71 on
Lars Hedenäs, Stockholm

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Mar. 31 - Apr. 7. BBS Spring Field Meeting, Brittany, France. Further information from J.W. Bates, Imperial College Field Station, Silwood Park, Ascot, Berkshire SL5 7PY, U.K. Telephone 0344 23911.

June 21-25. Symposium on "Neotropical montane forest: biodiversity and conservation" at the New York Botanical Garden. Emphasis will be on the taxonomic and ecological richness of the humid montane forests of the tropical Andes as well as conservation of the biodiversity in that area. For information contact: Dr. James Luteyn, Neotropical Montane Forest Symposium 1993, New York Botanical Garden, Bronx, NY 10458-5126, U.S.A.

July 28. - Aug. 4. BBS Summer Meeting at Dumfries and Galloway. Further information from Alexander Rowan, 1 Robertson Avenue, Dumfries DG1 4EY, U.K. Telephone and Fax 0387 63051.

August 28 - September 3. XV International Botanical Congress, including Symposia on Bryophyte Classification and Bryophyte Chemistry and the IAB general meeting. Tokyo, Japan. Inquiries: Zennoske Iwatsuki, Hiroshima University, Botanical Institute, Higashi-hiroshima-shi, Hiroshima, 724 Japan, FAX (824) 240709. Program: see *The Bryological Times* 68/69, 1992

Sept. 17-19. Annual General Meeting and Symposium of BBS at Ripon. Special theme is 100th anniversary of the death of Richard Spruce, a 19th century bryologist who is known for his collections and studies in South America. Cost approximately £38 per day (full board). Further information from Mike Longman, 8 St. Quentin Rise, Bradway, Sheffield S17 4PR, U.K. Telephone 0742 368010.

From January 1993 onwards all items for publication are to be sent to the new editor of the Bryological Times: Lars Hedenäs, Swedish Museum of Natural History, Department of Cryptogamic Botany, Box 50007, S-10405 Stockholm, Sweden.