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The raison d'être for a Taxonomic Column by Dale H. Vitt

THE PURPOSE OF this Taxonomic Column is to stimulate bryologists to think about relationships, especially those of genera, families, and orders of bryophytes. As well, it is here to present up-to-date summaries of similarities and differences of the major genera and familial groups. As editor of the moss portion of the column, I would like to have a column where new ideas can be written and discussed in an informal way. A place where bryologists can try out thoughts. Much of systematic thought is speculative; however there must be data upon which to base this speculation. I would hope that this column will be a place where bryologists can be made aware of the data that specialists of particular groups feel are of significance, and secondly, how these specialists suggest these data can be utilized in expressing relationships.

Between 1924 - 1925, when Brotherus wrote his classification of the Musci in *Die Natürlichen Pflanzenfamilien*, and the late 1970's little effort was made by bryologists to consider different ways of classifying the groups of mosses. In this lack of activity, the taxonomy of mosses fell considerably behind that of many other groups, particularly that of ferns, angiosperms, and the algae. While zoologists were discussing W. Hennig, sister groups, and how relationships are determined, bryology as a taxonomic field stagnated as floristics, or descriptions of new species without mention of relationships.

In the late seventies, this began to change. Even as early as 1968, Timo Koponen was interested in relationships of the Mniaceae, and used Hennigian methodology. Phylogenetic thought was present in Gary Smith's (1971) paper, although he did not use an analysis with data. Also, in 1971, I used dendrograms (patterned after Herb Wagner) on *Orthotrichum*. Perhaps, this style of thinking led some bryologists

to publish ideas on classification of mosses. Harold Robinson's (1971) paper was one of the first to ponder new familial relationships, even though he chose not to include any reasons for his ideas. Marshall Crosby's paper in 1980 was the first to propose some significantly different ideas in the arrangement of moss families based on peristome differences.

When I was asked to write descriptions of all moss families for Sybil Parker's (1982) *Synopsis and Classification of Living Organisms*, I had an opportunity to study material of all moss families and many genera. Stimulated by Marshall Crosby's ideas, by discussions of relationships with Diana Horton then studying peristome structure of *Encalypta*, and being very impressed with Sean Edwards' (1979) data and ideas of how peristome structure can be used in assessing relationships, I presented a classification of moss families in Sybil Parker's encyclopedia. Since then, with the publications of the *New manual of bryology* (Schuster 1984), both Sean Edwards and I have added to our original work on peristomes and classification. The only difference between the classification presented in *The Synopsis* and in *The Manual* is one of rank, orders having been used in the former, but suborders in the latter solely to conform to Rudy Schuster's suborders in the hepatics.

In order to advance the ideas already presented, it is paramount that the various components of a classification be treated as hypotheses, expressed so that they can be corrected, modified, or agreed with, based on new data or on re-assessments of data already to hand. It seems that this is the case at the present time. Increased interest in these ideas has led to new research or to re-evaluations of previous work. This latter situation, however, can lead one down the path of competition,

and potential ill-feelings, especially prevalent in such a small field as bryology. A review of recent research on the classification of mosses will be included with the next issue of this column.

So, I finish this initial article with the hope that this column can be a place of feedback, a vehicle that allows new ideas, and basic facts to be presented in order that they may be tested before a friendly audience, at the same time as, perhaps, stimulating thoughts on moss classification in bryologists who have not so far allowed themselves to do so.

It is only fitting to begin this series with the first of hopefully several explanations by Harold Robinson of his views of the classification of moss groups.

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**On the Relationships of
the Hookeriaceae***
By Harold Robinson

PRESUMABLY, because of a wealth of structural features, the group of mosses including the Hookeriaceae has received a considerable amount of attention by taxonomists and phylogenists over the years (Miller, 1971). Fourteen years ago the present author (Robinson, 1971) added to the speculation by introducing the idea that the moss family Hookeriaceae and its close relatives, such as the Leucomiaceae, had their most natural relationships to the Hypnaceae line of the pleurocarpous mosses, close to the Sematophyllaceae. The view represented a significant departure from the generally stated or implied view (Brotherus, 1925; Dixon, 1932; Vitt, 1984) that the Hookeriaceae, along with some families such as the Hypopterygiaceae, represent one of the major separate branches of the pleurocarpi and arose from near the base of the pleurocarpous stock. When the new placement was suggested it was only briefly explained with reference to the longitudinally furrowed outer surface of the exostome teeth and the secondary nature of the costa. It seems that a somewhat more complete presentation of the idea would be appropriate.

* A contribution to the *Taxonomic Column*, edited by D.H. Vitt (mosses) and J.J. Engel (hepatics). For addresses, see *Bryol. Times*, 31:9.

The primary reason for the suggested new relationship of the Hookeriaceae was the longitudinal furrow along the median line of the outer surface of the exostome in many members of the family and in some members of the Sematophyllaceae. The character is inconsistent within both families and initially might seem an unreliable basis for such broad phyletic proposals. The furrow varies in the families as much as the striated versus papillose outer surface of the exostome that has been used to establish artificial groups in both the Hookeriaceae (Daltoniaceae, Crosby, 1974) and Sematophyllaceae (Clastobryoideae, Tixier, 1977). However, I accept the concept that a character can be variable within a relationship but still be restricted to that relationship, and I believe the gapping furrow of the exostome is restricted to a related group of families. This view excludes the apparent furrowed exostome type in some Pterobryaceae (*Endotrichella* and *Euptychium*) that is illustrated very differently by Brotherus (1925), and excludes for the present the furrow cited for *Cyathophorum* of the Hypopterygiaceae. The gapping furrowed peristome has proved useful in demonstrating and locating members and relatives of the Hookeriaceae such as the Leucomiaceae, the Ptychomniaceae (Robinson, 1975) and *Bryodussenia* (Robinson, 1974); *Ancistrodes Hampe*, *nom. nud.* of some authors (Crosby, 1976). Some of the related families, such as the Leucomiaceae and Ptychomniaceae, seem clearly related to the Hookeriaceae in spite of their cucullate calyptrae, but they agree with the Hookeriaceae in the poorly-developed alar cells. It remains to be shown whether the significance of the longitudinally-furrowed exostome extends to a family such as the Sematophyllaceae which is notable for its well-developed alar cells.

A question that needs to be asked is whether there is any reason to place the Hookeriaceae and its relatives as far from the Sematophyllaceae as is usual? The character that should be examined in this regard is the costa (or more appropriately for some Hookeriaceae, costae). There are genera of the Hookeriaceae such as *Daltonia*, *Crosbya* (*Bellia* Broth. non Bubani; Vitt, 1977), *Adelothecium*, *Bryobrothera* (Norris & Robinson, 1979), *Leskeodon* and *Distichophyllum* that have a strong simple symmetrically-placed costa reaching to near the tip. At first glance the costa of these genera shows no basis for consideration as derived. However, these genera have the features of

calyptra ornament and median leaf-cell specialization that must be considered as specialized in the order. The majority of the Hookeriaceae have costae short, double, or lacking in the terms often used to key out the Hypnoid pleurocarps. Some of the double costae such as those of *Callicosta* (*Pilotrichum*) and *Hookeriopsis* (including *Thamniopsis* (Robinson, 1967)) are as long as any of the single costae. There are also such genera as *Calypstrochaeta* (*Eriopus* Crosby, 1974) and *Achrophyllum* (*Pterygophyllum* of some authors but not according to type, Crosby, 1972) where the costa is partially single and asymmetric and often divided above. The most diverse elements in the relationship of the Hookeriaceae such as the Leucomiaceae and Ptychomniaceae have no well-developed costa.

It is my contention that the examples of single costae in the Hookeriaceae are derived and that the earlier placements of the order based on the costa being primitive were erroneous. Allen (1983) in his study of abnormal leaves in *Fontinalis* has shown actual examples of such reversals.

One further consideration seems worth noting. In work on the Brachytheciaceae (Robinson, 1962) the author became convinced that strong heterophyly is basic to the pleurocarpous Diplolepideae. Almost all groups of diplolepideous mosses having any claim of arising from basal positions among the pleurocarps have members retaining clear examples of well-differentiated stem and branch leaves and often clear frondose or dendroid forms. The only claim the Hookeriales have to such types is by inclusion of the dubiously related Hypopterygiaceae. In fact, the Hookeriales in all their unquestioned members have a level of dedifferentiation of stems and branches more like that of derived Hypnaceae such as the Sematophyllaceae.

I do not regard the point as proven, but I personally feel the reasons for the customary placement of the Hookeriales far from the Sematophyllaceae are erroneous. For the present I believe that the longitudinally-furrowed exostome with actual separation of outer plates is indicative of a related group including the Hookeriaceae and the Sematophyllaceae.

If the trends expressed here are valid, there are a few additional relationships that must be reassessed. Genera such as *Glyptothecium* with its many alar cells would not belong in

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the Ptychomniaceae, and the Symphyodontaceae with their alar cluster would not be as close to the Hookeriaceae as indicated by Brotherus (1925). Most importantly, the Hypopterygiaceae with their frondose form, well-developed central strands, and highly-differentiated ventral leaves would not be in the Hookerian or Hypnalian relationship. The furrowed exostome noted in *Cyathophorum* in the Hypopterygiaceae, which has no separation of outer plates, would be unrelated.

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Department of Botany, Museum of Natural History, Smithsonian Institution, Washington D.C. 20560, U.S.A.

PROPOSAL

FOR A TYPE REVISION OF EUROPEAN MOSSES

By Jan-Peter Frahm, Duisburg

AT THE THIRD MEETING of the Working Group for mapping the bryophytes of Europe held in Mont Rigi, 30th October - 3rd November, 1985, the author gave a short paper proposing a project for revising the types of European mosses. Since this project is, perhaps, of interest to other European bryologists who did not participate in this meeting, and also to taxonomic specialists in other parts of the world, the text of this paper is given here.

The proposal was discussed during the meeting and participants expressed their assent for the project. It was suggested that as a first step a list should be compiled of all taxa for which the types have already been revised (for instance, in connection with monographs). It was appreciated that contributions to this series will have different levels of completeness. However, this was not regarded as troublesome so long as the necessary minimum amount of information is included for each taxon. As a pilot project, a revision of the types for taxa in the genus *Lepidotium* will be carried out.

Professor R. Schumacker is eager to distribute further information about this project with circulars of the Working Group for mapping European bryophytes. Accordingly, guidelines for the project will be prepared. Anyone interested, or who is willing to contribute, is kindly asked to get in touch with the author.

IAB Dues Notice, 1986.

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1. In US dollars (\$8,-): send a cheque, drawn upon a United States Bank, payable to IAB to: Dr. D.H. Nicolson, Dept. of Botany, Smithsonian Institution, Washington D.C. 20560, U.S.A., or to the IAB in Utrecht. Please do not use Dr. Nicolson's name on the cheque.
2. In Dutch guilders (Fl.25,-): via postal giro (ccp) to nr.3360302, International Bureau for Plant Taxonomy, Utrecht, Netherlands, or via international money order addressed to the IAB in Utrecht.
3. In pounds sterling (£6,-): members may send their payment to Dr. F.H. Dawson, Freshwater Biological Association, River Laboratory, East Stoke, Wareham, Dorset BH20 6BB, England.
4. In Japanese yen (2,000): members may send their payment to Dr. H. Inoue, National Science Museum, Tokyo.

S.R. Gradstein, Honorary Secretary, IAB.

FOR CURRENT STUDIES on tropical bryophytes knowledge of the type specimen is absolutely necessary for developing a working species concept. Therefore species descriptions are usually based on the type, at least in part, and illustrations show, or at least fit, the type. By contrast in European bryology, with its long, nearly 200-year old history, current working species concepts for mosses are derived usually from the well-known floras of Moenkemeyer, Dixon, Nyholm or Smith. Thus the species are defined on the authority of authors who probably have never seen the types of most of the species described. Thus a species concept frequently depends on "common usage" gained by the study of recent collections in herbaria, or the study

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of bryofloras. Exceptions are few, e.g. revisions of the genus *Mnium* by Koponen (1967), or *Sphagnum* by Isoviita (1966).

Such a method has serious disadvantages. In certain cases there may be discrepancies between the concept of the same taxon by several different authors, not only as to whether certain plants should be treated as infraspecific taxa, or as "species", but also in the circumscription of taxa. As a result, examination of the same specimens by different bryologists can give different results, each having derived their species' concepts from different sources. For example, looking through herbarium specimens, one can find material of different taxa all named *Bryum funckii* and nobody can say which material is true *B. funckii*. In some cases it has even been discovered that the working species concept of bryological literature does not fit the type specimen (cf. *Campylopus flexuosus*, Corley, 1976), thus causing nomenclatural problems. Such problems have major implications in cases where this species is also the type of a genus.

It might also have happened that errors have crept into the literature in the middle of the last century which have been repeated continuously. Furthermore, the *Index muscorum* lists species from Europe which do not appear in any of the European moss florals, or in check lists, and which apparently have not been revised e.g. *Leptodontium debatii* (Husn.) Hag. and *L. subalpinum* (De Not.) Lindb. Clearly it would be worthwhile to clear up such taxonomic uncertainties. Another problem is that for many species no types have been designated because early authors, such as Hedwig, never cited types, and so lectotypifications are necessary. In other cases types may be lost, or have been destroyed, and so neotypification is desirable. However one looks at it, checking the taxonomy and nomenclature of a taxon is a necessary first step before mapping the taxon. For hepatics such basic work has been done by Grolle (1976, 1983), with the result that a firm basis has been established for the nomenclature and typification of European liverworts. However, such a basis is lacking for European mosses.

It is here proposed that a type revision of European mosses should be started. This revision should include: - information on the location

- of the type specimen(s);
- the results of a critical examination of the type material;
- the details of necessary taxonomic procedures of lecto- or neotypification;
- a description and illustration of the type.

Such a project could be carried out by numerous contributors, e.g. specialists revising small families, single genera, or even infrageneric categories of larger genera and, ideally, the results should be published as part of a special series. It would provide us with a sound basis for all future bryological work in Europe.

The style and format of such a series does not need to be standardized too much. But as a minimum each contribution should include at least a full citation of each taxon, the collecting details of the type specimen(s) with location(s), and also remarks as to whether the nomenclature or the taxonomic use of the taxon is correct. Where it is not, the necessary nomenclatural procedures, e.g. typification, should be reported. Additionally it could contain a description of the type specimen, to show which expression of variability of the taxon is represented in the type, and be accompanied by an illustration. Any noteworthy remarks about the taxon should be included. The results of such investigations should all appear in the same journal to ensure some uniformity in the layout of the different contributions in the series.

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Universität Gesamthochschule
Duisburg, Fachbereich 6, Botanik,
Postfach 101629, D-4100, Duisburg
Fed. Rep. Germany.

STERILE CULTURES*

PROPAGULES collected in the field and parts of mature plants often need to be grown in sterile culture for identification or to measure physiological response. Cultures that are not sterile are soon overtaken by algae, fungi, and bacteria. Methods used for sterilizing seeds and parts of higher plants usually destroy the chlorophyll of bryophytes, but some techniques can be borrowed from methods used for algae and bacteria.

Dr. Tomio Mori, 73 Kashiwabaracho, Goshagawara-shi, Aomori-ken, 037 Japan, is a medical doctor and amateur bryologist who has adapted a medical technique to culture fragments of *Thuidium kanedae*. He uses 1g streptomycin dissolved in 2 cc distilled water, which is diluted to 5-10 litres. Field material is soaked for 3-5 minutes, then washed in distilled water twice before culturing.

Dr. Jan Sarosiek of the Botanical Institute, University of Wrocław, 50-328 Wrocław, Poland, has used several techniques to provide sterile cultures of aquatic bryophytes. Bryophyte material is washed in distilled water, then in 30% ethyl alcohol for 2 seconds, and rinsed in distilled water. The material is then placed in 2% monochloramine for 25-35 seconds and rinsed 3 more times in distilled water. Growth chambers are sterilized in UV light for 13 hours. The culture medium is pond water that has been autoclaved for 1 hour at 1 atmosphere pressure.

To inhibit growth of blue-green algae (Cyanobacteria), he used *Sphagnum* peat. This peat is ground and filtered to obtain humic acid. He adds c. 2% KOH and separates the active layer in a standard chromatography column. The bottom layer is the active fraction of humic acid and it will stimulate higher plant growth while inhibiting Cyanobacteria.

Microscopic algae and bacteria are often cultured by a dilution and transfer technique that can be applied to some bryophyte cultures. Spores can be placed in distilled water with 2-3 drops of liquid soap or TWEEN, 20 per litre to provide a more even distribution. (The volume of water actually used depends on the number of spores being cultured.) This liquid is placed in an aerosol sprayer and sprayed on to agar plates. Alternatively, an inoculating needle can be used

* A contribution to the Techniques Notebook Column by its Editor, Janice M. Glime.

to spread the liquid on a plate. Once the spore germinates, it is helpful to transfer the young sporeling to a fresh, sterile agar plate.

I have used 1% hypochlorite to surface sterilize *Fontinalis* material. However, when the concentration was great enough to inhibit the algae, it completely destroyed the chlorophyll, and the moss was white. Several protected buds remained bright green, and it might be possible to isolate these buds and culture them. Buds on the sterile plant did not grow, presumably due to lack of nutrition, so one might try isolating these and growing them on a nutrient medium with 1% glucose.

In general, culture media containing glucose or other carbohydrate sources should be avoided when non-sterile plant material is being cultured, because these food sources favour fungi and bacteria.

I would appreciate hearing about other successful sterile culture methods because a lot of bryologists have to struggle with this problem.

Dept. of Biological Sciences,
Michigan Technological University,
Houghton, Michigan 49931,
U.S.A.

A FIRE AT HOME

THE EDITOR would like to thank all who have written commiserating with him on his recent tragedy, particularly those who offered books and reprints to help rebuild his library. In fact the fire, which partially destroyed his home and resulted in a fatality, while he was at the Bryological Meetings in Hungary in August, did not burn anything in his study. Everything, however, was severely smoke damaged. Specialist cleaning has been necessary to restore the volumes, but no records or books have been irretrievably lost. The bulk of the bibliographic files are kept in the University and so escaped damage.

Although the necessary rebuilding was completed in November, it will take some time to get all working normally again. Very unfortunately some deadlines have had to be missed. Thanks to the loyal support of the members of his small research team, work has continued on the files in the Department and it is still hoped to complete the manuscript of the *Conspectus of bryological taxonomic literature* by the spring of 1987.

S.W. Greene

IAB Conference - Hungary August 1985

[THE FOLLOWING PROGRAMME of sessions, held during IAB's first Bryoecology Conference, was prepared by Dr. M. Rajczy of the Hungarian Natural History Museum, Budapest. It is intended to publish the official Conference photograph of participants in the next issue of this Newsletter. Editor.]

Session 1: Physiological ecology

Chairman: M.C.F. Proctor
August 6: 8.00 - 13.00 hrs.

- ANDO, H.: Moss gardening in Japan.
BALÓ, K.: Some photosynthetic ecological characteristics of forest bryophytes.
BÍRÓ, GY. & ZS. DEBRECZY: Habitat and plant community conditions of a heliophyte, drought- and warm resistant (photo-fil-xerothermotolerant) moss micro community ("*Grimaldio-Tortelletum*" prov.) and micro-respirometric tests of its species.
DEISING, H.: In-vivo studies on nitrate reductase of *Sphagna*.
ÉLIÁŠ, P. & E. MASAROVICOVA: Some ecophysiological features in woodland mosses in SW Slovakia. 1. Water relations.
IWATSUKI, Z.: Microclimate and epiphytic bryophytes at Inotani Valley, southern Japan.
MASAROVICOVA, E. & P. ELIÁŠ: Some ecophysiological features in woodland mosses in SW Slovakia. 2. Chlorophyll content and photosynthesis.
RAEYMAEKERS, G. & J.E. LONGWITH: The use of dimethyl sulfoxide (DMSO) as a solvent to extract chlorophyll from mosses.
RUDOLPH, H. & J.U. VOIGT: The effect of NO_3^- and NH_4^+ on the metabolism of *Sphagnum magellanicum*.
RUSSEL, S.: Water relations and nutrient status of bryophyte communities at Marion Island (Sub-Antarctic).
SIMON, E.: *Lyophyllum palustre*, a parasite on *Sphagnum*.
TUBA, Z.: Light, temperature and desiccation responses of CO_2 - exchange in *Tortula ruralis*.
WÄCHTER, D.: *Sphagnum* acid, a "natural product" with ecological significance?
ZIELINSKI, R.: Genetic differentiation of the liverwort genus *Pellia* with special reference to Central European territory.

Session 2: Reproduction and dispersal ecology

Chairman: H.J. Düring
August 6: 14.00-18.30 hrs.

- BALCERKIEWICZ, S. & A. RUSIŃSKA: Expansion of bryophytes on areas treated with herbicides.
BERGSTROM, D.M. & P.M. SELKIRK: Studies on bryophyte repro-

Session 2. (contd.)

- duction on a subantarctic island.
HASSEL DE MENÉNDEZ, G.G.: Progress with knowledge and distribution of the submerged genus *Riella* (Hepaticae) in Argentina.
HERBEN, T.: The ecology of the invasion of *Orthodontium lineare* Schwaegr. in Central Europe.
KANDA, H.: Life history characteristics in Antarctic mosses.
LEWIS SMITH, R.I.: The bryophyte propagule bank of Antarctic fellfield soils.
MCQUEEN, C.B.: Spore germination and protonema development in *Sphagnum*.
MILES, C.J. & R.E. LONGTON: Reproductive biology of *Atrichum undulatum*.
MILLER, N.G.: Late quaternary fossil moss floras of eastern North America: Evidence of major floristic changes during the Holocene.
NEHIRA, I. & N. NAKAGOSHI: Reproductive processes of bryophytes in urban ecosystems.
ODU, E.A.: On the gemmae of west tropical African mosses.
PIIPPO, S., KOPONEN, T. & D.H. NORRIS: Endemism in the bryophyte flora of New Guinea.
RYDIN, H.: Microdistribution of *Sphagnum* in relation to physical environment and competition.
SCOTT, G.A.M.: The reproductive biology of the liverwort *Lethocolea squamata*.
SELKIRK, P.M. & R.D. SEPPELT: Species distribution within a moss bed in East Antarctica.
WHITEHOUSE, H.L.K.: Protonema-gemmae in European mosses.
VAN ZANTEN, B.O.: Feasibility of long-distance transport of Colombian hepatics.

Session 3: Community ecology

Chairman: N. Slack.
August 5: 10.00-13.30 hrs.

- BAUDOIN, R., BISCHLER, H. & J.P. HEBRARD: Bryophytes and pine tree forests in the Mediterranean.
DÜRING, H.J. & B. HORST: Diversity and dynamics in bryophyte communities on earth banks in a Dutch forest.
GLIME, J.M. & N.G. SLACK: Bryophyte community zonation in northern streams. [contd.p.6]

[Session 3: continued from last page.]

- HOFFMAN, M.: Species associations among corticolous cryptogams: a comparative study of two sampling methods.
- JOSHI, D.Y.: Hepatic flora of the deciduous forest of Purandhar and neighbouring hills, Maharashtra, India.
- NAKAMURA, T.: Bryophyte and lichen succession on fallen logs and seedling establishment in hemlock-fir forests of Central Japan.
- NORRIS, H.D.: Long-term results of cutting on the bryophytes of the *Sequoia sempervirens* forest in California.
- ORBÁN, S.: The use of bryophytes for ecological comparison of vegetational units and of habitats.
- SLACK, N. & D.H. VITT: Niche diversification in *Sphagnum* and other mire bryophytes: geographical variation.

Session 4: Population ecology

Chairman: R. Wyatt
August 5: 14.30-18.00 hrs.

- GLIME, J.: Growth models in *Fontinalis* populations.
- KRZAKOWA, M.: Peroxidases in four liverworts connected with different ecological conditions.
- ODRZYKOSKI, I.J.: *Conocephalum conicum* as a group of sibling species.
- SEPPELT, R.D. & P.M. SELKIRK: Genecological differentiation in *Bryum argenteum* and *B. algens*.
- SHAW, J.: Experimental taxonomy of *Climacium americanum* Brid. and *C. kindbergii*: preliminary investigations.
- SÖDERSTRÖM, L.: Colonization and competition among log-inhabiting bryophytes.
- WYATT, R., ODRZYKOSKI, I.J. & A. STONEBURNER: Genetic variation in *Plagiomnium ciliare*.
- ZIELINSKI, R.: Electrophoretic studies on the mating system in monoecious and dioecious liverworts of the genus *Pellia*.

Session 5: Bryophytes in ecosystems

Chairman: R.E. Longton
August 7: 8.00 - 11.00 hrs.

- BORHIDI, A. & T. PÓCS: Effects of serpentine on the distribution of cryptogams in Cuba.
- DAVIDSON, A. & R.E. LONGTON: Bryophyte consumption by a generalist-feeding slug species.
- FRAHM, J.-P.: Which factors control the growth of epiphytic bryophytes in tropical rain-forests?
- GERSON, U.: Mites which feed on mosses.
- HAJI MOHAMED, M.A.: Limestone moss flora of Malaya.

[Session 5: continued]

- HYVÖNEN, J., KOPONEN, T. & D.H. NORRIS: Human influence on the moss flora of tropical rain-forest in Papua New-Guinea.
- RAMSAY, H., STREIMANN, H. & G. HARDAN: Observations on the bryoflora of Australasian rain-forests.
- VAN REENEN, G.B.A.: Altitudinal bryophyte zonation in the Andes of Columbia.
- SEPPELT, R.D., SELKIRK, P.M. & E. EDGECOMB: The significance of bryophytes in a subantarctic ecosystem.
- SIMON, T.: The leaf-area index of three moss species.
- VAN TOOREN, F.: The role of bryophytes in a chalk-grassland ecosystem.
- VASANDER, H.: The effect of forest amelioration on the understorey biomass, species richness and diversity of southern boreal Finnish mires.

Session 5:

Bryophytes as bioindicators

Chairman: J. Sarosiek
August 7: 11.15-16.00 hrs.

- KISS, T.: Acid rain induced regressive succession in *Juglans* bark-inhabiting cryptogamic communities.
- KWAPULIŃSKI, J. & J. SAROSIEK: Radiotoxicological influence of power stations by investigation of some radioisotopes in mosses.
- MAKINEN, A.: *Sphagnum* moss-bags and air pollution monitoring in the city of Helsinki.
- MAKINEN, A.: The use of *Hylocomium splendens* for regional and local heavy metal monitoring around a coal-fired power plant in southern Finland.
- RAJCZY, M.: Bryophyte flora in the lamp-lit areas of the caves near Lillafüred, NE Hungary.
- RON, E., MAZIMPAKA, V., VICENTE, J. & GRANZOW DE LA CERDA: Urban bryophytes in Spanish towns.
- SAROSIEK, J., WIEWIÓRKA, Z. & L. MRÓZ: Bioindication of heavy metal toxicity in water by use of the liverwort *Ricciocarpus natans* (L.) Corda.
- SAROSIEK, J., WOZAKOWSKA-NATKANIEC, H. & Z. WIEWIÓRKA: The effect of heavy metals on the dynamics of a *Ricciocarpus natans* population.
- SERGIO, C.: Epiphytic bryophytes and air quality in the Tagus Estuary.
- SERGIO, C.: Bryophyte vegetation and ecology of calcareous areas in the Iberian Peninsula.

LANGUAGE ASSISTANCE

by Janice Glime

MANY OF OUR COLLEAGUES from non-English-speaking countries presented papers at the Bryophyte Ecology Conference in Budapest. For many of these people, preparation of a paper in English is a very time-consuming task, and some are reluctant to try because their ability to use English is limited. I found that many colleagues would be delighted to accept an offer to correct the grammar in a paper to be presented in English, but most were hesitant to ask for help because they felt it to be an imposition. I was also surprised to find that many colleagues, especially from eastern countries, felt they had no opportunity to publish in the more widespread English language journals.

We have seen in Budapest that there is much good research being done by our Eastern European colleagues which is inaccessible to many due to a lack of knowledge of their languages. One way to gain access to these publications is to encourage those who publish in other languages to write summaries in English and to send manuscripts for publication in English language journals.

I discussed my ideas with many of my English-speaking colleagues while on the field trips in Hungary. The response was heart-warming. All were eager to help. So we have decided to offer two services: the correction of manuscripts and the preparation of tapes to aid in presentation. Dr. Alan Harrington of the British Museum (Natural History) has kindly agreed to co-ordinate this service.

I have compiled a list of people who are willing to help, but more are needed! Colleagues (including students) who wish to publish or present a paper in English, and have difficulty with the language, should write to LANGUAGE ASSISTANCE. He or she will then be notified of the name and address of a person to whom the manuscript should be sent. The helper will also be notified of the name of the Colleague requesting assistance. From that time forward, the two will work as a team. All papers from one author should be sent directly to the English-speaking helper.

This is not a translation service, but a service to improve wording, correct grammar and enhance the flow of the language. It is not a review process. The English-speaking helper is

[contd. on p.7]

[contd. from page 6.]

not expected to comment on the science of the paper or to re-organize it. The purpose is only to improve clarity in presentation.

Those who have to deliver a lecture in English at a Conference may receive a tape-recording of their paper, provided a type-written manuscript and tape are sent to the helper sufficiently early to prepare for this. The service is offered to help those who seldom hear English, and are unfamiliar with its pronunciation. The tape should not be used during the presentation. The paper will be read slowly and distinctly during the recording and particular attention will be drawn to words which are difficult to pronounce. I must give credit for this idea to my German colleague, Prof. Hans Rudolph, who asked me to make a tape for him before the Budapest meeting.

English-speaking colleagues who are willing to help should contact either Alan Harrington or me. We will try to limit the number of non-English speaking colleagues assigned to any one English-speaking colleague to no more than 1 or 2. Many have been providing such a service informally for colleagues for many years. We hope you will join with us and add new names from among those of you who have not yet had such an opportunity to assist colleagues who do not know where to turn for help. Organized in this way, hopefully no one need feel it is an imposition or be too shy to ask, and this service will increase communication among all of us to our mutual benefit and the future development of bryology.

If you wish to make use of this service or want to participate in its operation, please write to LANGUAGE ASSISTANCE, c/o Dr. A.J. Harrington, British Museum (Natural History), Cromwell Road, London SW7 5BD, U.K.

Dept. of Biological Sciences,
Michigan Technological University,
Houghton, MI 49931, U.S.A.

IAB PUBLICATIONS

FOLLOWING THE DEATH of J. Cramer, negotiations have been started to find a new publisher for Association publications. In the meantime, anyone wishing to purchase items published by J. Cramer Verlag, should continue to address orders in the usual way to:

J. Cramer Verlag, In den
Springaeckern 2, D-3300
Braunschweig, B.R.D.

New President and

Vice-President for IAPT

DR. STANLEY W. GREENE, former Vice-President of the International Association for Plant Taxonomy, has been elected by the IAPT Council as President of this Association following the untimely retirement of Dr. Richard S. Cowan from this office, as of 1st October, 1985.

DR. DAN NICOLSON was elected Vice-President to succeed Dr. Greene in this office. Dr. Greene and Dr. Nicolson will serve in their new offices until the Berlin Congress, 1987.

S.R. Gradstein, Hon. Sec., IAB.

NEW PROFESSOR AT HELSINKI

DR. TIMO KOPONEN, the former Head Curator of the Cryptogamic Herbarium, Botanical Museum, University of Helsinki (H), has been appointed the Professor of Botany, in the University of Helsinki. Until a new Head Curator will be selected, Dr. Pekka Isoviita will be acting in that position. This new office will in no way interfere with Dr. Koponen's studies of Western Melanesian bryoflora (joint project with Prof. D.H. Norris, Lic. Sinikka Piippo, and Jaakko Hyvärinen, M.Sc.), the Bryoflora of China and his monograph of the Mniaceae.

P. Isoviita, Botanical Museum,
University of Helsinki, Unioninkatu 44, SF-00170 Helsinki 17,
Finland.

Personalia

Dr. ALLAN J. FIFE has taken up a staff position at Botany Division, Department of Scientific and Industrial Research, Christchurch, New Zealand (CHR). This follows a post-doctoral fellowship held at the same institution. His primary responsibility will be the production of a moss volume in the on-going Flora of New Zealand series. He would be pleased to make contact with bryological colleagues travelling in New Zealand.

Prof. DANIEL H. NORRIS from Humboldt State University (Arcata, California) is working at the Botanical Museum, Helsinki, until July 28, 1986.

Prof. Norris is sponsored by a Fulbright Fellowship, and is studying the mosses of Western Melanesia in co-operation with Prof. T. Koponen.

Dr. SÁNDOR ORBÁN of Ho Si Minh Teachers' College, Szabadság ter 2, Eger H-3301, Hungary will act as Distribution Agent for the *Bryological Times* throughout Eastern Socialist Countries during Prof. Pócs' absence in Africa.

Prof. TAMÁS PÓCS of Vácrátót has accepted a 2-year Professorship in Africa funded by the Norwegian Agency for International Development. His address until further notice is: Dept. of Forest Biology, Sokoine University of Agriculture, PO Box 3009, Morogoro, Tanzania.

Dr. MARK SEAWARD, Reader in Environmental Botany in Bradford University's School of Environmental Science, has been awarded a gold medal, the Nummo Aureo, by Wrocław University, in recognition of his services to Polish botanical science.

Deaths

SCHELPE, Edmund Andre Charles
Lois Eloi (Ted), died at his home in Cape Town on 12 October, 1985.

WU, WEN-ZUAN of Yunnan University died during 1985.

Recent Publications

Australasian Bryol. Newsletter,
No. 13: 1-6, 1985.

Bryolog. Beitrage, 5: 110-232, 1985.

Bryologist, 88(2): 65-168, 1985.

Crypt. Bryol. Lichen., 6(3): 205-314, 1985.

Evansia, 2(2): 17-32, 1985; 2(3): 33-48, 1985.

J. Bryol., 13(4): 461-636, 1985.

J. Hattori Bot. Lab., No. 58: 1-542, 1985.

Lindbergia, 11(1): 1-71, 1985.

Novit. Syst. Plant. non Vasc., 22: 3-235, 1985.

Proc. Bryol. Soc. Japan, 4(1): 1-14, 1985; 4(2): 15-30, 1985; 4(3): 31-50, 1985.

Taxon, 34(4): 573-812, 1985.

PUBLICATION OF HERZOGIA

THE JOURNAL *Herzogia* will be continued by Gebr. Borntraeger Verlagshandlung (Berlin/Stuttgart). Members of the bryologisch-lichenologische Arbeitsgemeinschaft für Mitteleuropa will continue to get the journal from the Secretary (Landessammlungen für Naturkunde, Erbprinzenstr. 13, D-7500 Karlsruhe 1). Institutes and libraries may order it from E. Schweizerbart'sche Verlagshandlung, Johannesstr. 3 A, 7000 Stuttgart 1. [G. Philippi]

DIARY

For explanation of acronyms, see Bryol. Times, 31: 7-8, 1985.

1986

Jan. 31-3 Feb. Cass, New Zealand. 3rd Annual bryological field meeting. See Bryol. Times, 33:3.

March 15-16. SBLs. Meeting of collaborators of the Swiss Bryophyte Mapping Project at Zürich, Botanical Institute of the University. Further information from Klaus Ammann, Syst.-Geo-bot. Institut, Altenbergrain 21, CH-3013, Bern, Switzerland.

April 2-9. BBS. Spring field meeting, East Dereham, Norfolk. Local Sec.: Mr. R. Stevenson, 111 Wootton Rd., King's Lynn, Norfolk PE30 4DJ. For details see Bull. BBS, 47.

May 23-25. SBLs. Bryophyte Mapping Week-end, Porrentruy (NW Switzerland). Further information from Klaus Ammann, Syst.-Geo-bot. Institut, Altenbergrain 21, CH-3013, Bern, Switzerland.

June 20-22. SBLs. Annual Assembly, Elm (Canton Glarus, Northern Central Alps). Further information from Klaus Ammann, Syst.-Geo-bot. Institut, Altenbergrain 21, CH-3013, Bern, Switzerland.

July 20-30. DBLWG. Summer field camp nr. Champagnole, French Jura. Further information from Han van Dobben, Maria-plaats 16, 3511 LJ Utrecht, The Netherlands.

July 23-29. BBS. Summer field meeting (1st week), Fort William. Local Sec.: Mr. G.P. Rothero, Benmore Centre, By Dunoon, Argyll, Scotland.

July 28-2 Aug. NBS. Summer excursion - annual meeting. Frös-kog, Dalsland, SW Sweden. Organizer, T. Hallingbäck. Further information from Sven Fransen, Botaniska Institutionen, Carl Skottsbergs gata 22, 413 19 Göteborg, Sweden.

July 30 - 5 Aug. BBS. Summer field meeting (2nd week), Gairloch, Wester Ross. Local Sec.: Mr. D.G. Long, Royal Botanic Garden, Edinburgh EH3 5LR. For details of both weeks see Bull. BBS, 47.

Aug. 26-29/30. CEBWG. Leipzig, DDR. For preliminary announcement, see Bryol. Times, 34:8.

Aug. 28 - 1 Sept. SBLs. Field Meeting. Fideriser Heuberge (Prättigau, Ct. Grison). Further information from Klaus Ammann, Syst.-Geo-bot. Institut, Altenbergrain 21, CH-3013, Bern, Switzerland.

Sept. 19-21. Eleventh annual LeRoy Andrews Foray. Peconic Dunes Camp of Suffolk County, Long Island, New York. Further information from William R. Buck, New York Botanical Garden, Bronx, NY 10458 - 5126, U.S.A.

Sept. 20-21. BBS. A.G.M. and paper-reading meeting. University of Leeds. Local Sec.: Prof. D.J. Cove, Dept. of Genetics, University of Leeds, Leeds LS2 9JT. For preliminary details see Bull. BBS, 47.

Oct. 4-5 or 11-12. SBLs. Taxonomic Workshop with Dr. J. Váná on *Jungermannia* and *Marsupella*. Zürich, Botanical Institute of the University. Further information from Klaus Ammann, Syst.-Geo-bot. Institut, Altenbergrain 21, CH-3013, Bern, Switzerland.

Nov. 1-2. BBS. Taxonomic Work-

shop, University of Reading. Local Sec.: Dr. R.E. Longton, Dept. of Botany, The University, Reading RG6 2AS, Berkshire, England. For details see Bull. BBS, 47.

1987

April 1-8. BBS. Spring field meeting, Penzance, Cornwall. Local Sec.: Mrs. J.A. Paton, Fair Rising, Wag Lane, Probus, Truro, Cornwall TR2 4JU. For details see Bull. BBS, 47.

July 17 - 23. IAB. Mainz. Bryological Methods Workshop. For further information, see Bryol. Times, 34:7.

July 24 - 1 Aug. XIVth IBC Berlin (West). Preceded by IAPT Nomenclature Sessions, July 20 - 24. For preliminary notice see Bryol. Times, 23: 9. Congress Address: XIV IBC. Bot. Garden and Museum, Königen-Luise-Strasse 6-8, D -1000, Berlin (West) 33, Germany.

July or Aug. BBS. Summer field meeting, Achill Island, Co. Mayo, and Westport. Local Sec.: Dr. D.M. Synnott, National Botanic Gardens, Glasnevin, Dublin 9, Ireland. For preliminary details see Bull. BBS, 46.

Sept. BBS. A.G.M. and paper-reading meeting, Wye College, Kent. Local Sec.: Dr. M.A.S. Burton, Paris House, East Mall, Maidstone, Kent ME 19 6AU. For preliminary notice see Bull. BBS, 47.

Nov. BBS. Taxonomic Workshop. University of Manchester. Local Sec.: Dr. S.R. Edwards, The Herbarium, Manchester Museum, The University, Manchester M13 9PL. For preliminary details see Bull. BBS, 47.

THE INTERNATIONAL ASSOCIATION OF BRYOLOGISTS publishes The Bryological Times every two months, and the Advances in Bryology every two years. Material for The Bryological Times can be sent at any time, but submission dates for the Advances should be discussed with its Editor, Dr. Norton G. Miller (Albany) U.S.A. The Editors do not accept responsibility for the views of authors.

For details regarding membership of the International Association of Bryologists (currently U.S. \$ 8.00 p.a.), write to the Honorary Secretary, Dr. S.R. Gradstein, Instituut voor Systematische Plantkunde, Heidelberglaan 2, 3584 CS Utrecht, The Netherlands.

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ITEMS FOR THE NEXT ISSUE to be with the Editor, Dr. S.W. Greene, Department of Botany, The University of Reading, London Road, Reading RG1 5AQ, Berkshire, England (Telex 847813 RULIB) by 1st of March at the latest. Items for the regular columns should be sent direct to the column editors, whose names and addresses will be found in Bryol. Times, 31:9, 1985.