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## On distinguishing Pterobryaceae and Meteoriaceae by means of Pseudoparaphyllia

By Bruce Allen

THE PTEROBRYACEAE AND METEORIA-CEAE are predominantly large, conspicuous, tropical and sub-tropical mosses. Because of their tropical distributions, many temperate bryologists lack detailed knowledge of these families. In the broadest sense (Crosby & Magill, 1981; Walther, 1983; Vitt, 1984), the Meteoriaceae contain 22 genera, and the Pterobryaceae 34 genera.

Most muscologists would find little fault in the traditional classification of the Meteoriaceae (sensu Brothers, 1925), but this is, however, not so with the Pterobryaceae. Dissenting views can be found (e.g. Arzeni, 1954 and During, 1977) and there is a growing opinion among those interested in tropical muscology that the Pterobryaceae, sensu Brotherus, represents a collection of diverse elements (Argent, 1973; Miller & Manuel, 1982; Magill, 1983). Indeed, the most recent and radical consideration of Brotherus's Pterobryaceae (Buck & Vitt, 1986) elevates his four subfamilies to families, and disperses them among two orders (Leucodonatales and Hypnales) and three suborders (Pterobryineae, Climaciineae, and Hypnodendrineae). In this treatment all four families are considered less closely related to each other than to "outside" families.

While the "mainstream" Pterobryaceae and Meteoriaceae are adequately distinguished from one another, the traditional circumscription of these families is such that marginal group overlap in a number of character states. The nebulous boundary separating the two families is first apparent in the use of the adverbs "often, usually, frequently, or sometimes" before many key characters in their family descriptions. A character comparison of both groups fails to clarify the situation as can be seen, for example, in Argent's (1973) summary of 12 differences between the two families on the African continent.

After excluding the characters that are present in both families (e.g. seta smooth in the Pterobryaceae and smooth or slightly roughened in the Meteoriaceae, or are given only as "usually", this list is reduced to seven characters. Of these, six are not pertinent when the families are considered on a worldwide basis. Even the highly-advocated character of properistome development coupled with weak endostome development, fails to separate the two when the Garovaglioidae is included in the Pterobryaceae.

Despite problems in sharply demarcating the two families, no muscologist would suggest they should be merged. But, as presently understood, the families are recognized only by a number of more or less exclusive character trends and an "intuitive feel". This situation is particularly troublesome to those engaged in tropical floristics.

Perhaps due to their common occurrence in the tropics, and their adoption of similar habitats, there are genera in either family that are gametophytically very close. Since the families are predominately dioicous, sporophytes are not common. The correct naming of these mosses depends, to a large degree, on recognizing their family. The genera of both families are rarely keyed out together, so when dealing with those "parallel" genera, the path to a wrong name can be remarkably smooth. A case in point is seen in the gametophytically-close genera *Squamidium* (Meteoriaceae) and *Orthostichopsis* (Pterobryaceae). Allen & Crosby (1987), in a revision of *Squamidium*, found that an inordinately large number of collections determined as *Squamidium* were actually species of *Orthostichopsis*. Undoubtedly a revision of *Orthostichopsis* would find the opposite true.

There is, however, a gametophytic character, not previously [ continued on page 2.]

## TAXACOM, AN ELECTRONIC BULLETIN BOARD SYSTEM

By R. H. Zander  
& Patricia M. Eckel

THE CLINTON HERBARIUM (BUF) offers collection-oriented botanists the opportunity to communicate informally, sharing data-intensive textual information and computer programs, in an online, symposium-style environment. TAXACOM is optimized for IBM-PC standard, MS-DOS software operating on an IBM-PC or IBM-PC compatible microcomputer, but may be accessed by any computer system. It is intended to complement databank-style online systems by offering specialists the opportunity to share their files and comments directly with other botanists. It runs on standard RBBS-PC bulletin board system software.

Present and projected features include: a message section for short public or private communications; several conferences on various topics allowing in-depth discussions; *flora online*, a new electronic journal publishing formal, scientific works and programs; a Latin translation service providing renderings of descriptions and diagnoses for new taxa; notices of professional positions available or wanted; *bulletins* for dates of society meetings and notices; *computer programs* for herbarium management, data manipulation, keys to taxa, numeric taxonomy; *species lists* (checklists, synonymy, type specimens, specialized collection inventories); *floras* descriptive catalogs; *taxonomic works* (but no nomenclatural novelties); *bibliographies*; specialized *glossaries* and *dictionaries*; *descriptions* of herbaria; *comments* and controversy, including requests for help, *lively debate*; *reviews* of electronic publications; *specimen exchange lists*; and *reports* of symposia and field trips.

How to connect: Dial 716-896-7581 at 2400, 1200 or 300 baud, use 8 data bits, 1 stop bit, no parity (or 7 data bits, 1 stop bit, even parity); after hearing a high tone, press your

[ continued on page 4. ]

"On distinguishing Pterobryaceae and Meteoriaceae" contd.

recognized, that appears to be an excellent indicator of these families, i.e. in the Pterobryaceae pseudoparaphyllia are present while in the Meteoriaceae pseudoparaphyllia are absent.

Those who have struggled with pseudoparaphyllia will approach this distinction with caution. This is because a fine line exists between foliose pseudoparaphyllia and rudimentary branch leaves. One frequently encounters cases that seem "too close to call". However, the pseudoparaphyllia of the Pterobryaceae are overwhelmingly filamentous and filamentous pseudoparaphyllia are usually easily recognized. There are, however, two things to consider when searching for them: (i) Due to their loss with age and the immense spatial rearrangement that accompanies the full development of a branch, only branch primordia should be examined. (ii) Many members of the Pterobryaceae bear numerous gemmae that arise from circular areas on the stem in the leaf axils. When young, these regions can be mistaken for branch primordia.

A branch primordium survey was carried out on the Pterobryacean and Meteoriacean species in the herbarium at MO. Without question, in order for the Pterobryaceae to have meaning in an "equal evolutionary sense" with neighbouring families, the subfamilies Pterobryoideae and Trachylomoideae should be excluded. In this survey only Brotherus's (1925) subfamilies Pterobryoideae and Garovaglioidae (with the additions of *Endotrichellopsis* and *Calyptothecium*) will be considered. Likewise, Brotherus's treatment of the Meteoriaceae (with the additions of *Meteoridium*, *Pseudobarbella* and *Zelometeorium*) is used.

As utilized in Ireland (1971) the symbol PP is used for plants with foliose pseudoparaphyllia and FPP for plants with filamentous pseudoparaphyllia.

### Pterobryaceae

#### Garovaglioidae

The species of this subfamily are infrequently branched. But unlike similarly unbranched members of the Pterobryoideae, in this group arrested branch primordia, and thus pseudoparaphyllia, are difficult to find.

#### *Endotrichellopsis laevifolia*

Branch primordia obscured by gemmae.

#### *Euptychium*

All FPP — *E. cuspidatum*; *E. dumosum*; *E. setigerum*; *E. vit-*

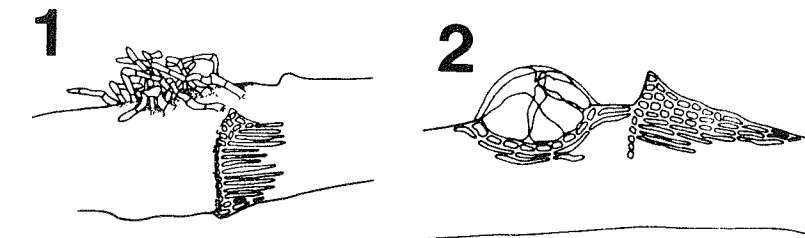


Figure 1. Filamentous pseudoparaphyllia around branch primordium of *Orthostichopsis tortilipilis* (Pterobryaceae).

Figure 2. Branch primordium of *Squamidium diversicoma* (Meteoriaceae).

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#### *Garovaglia*

FPP — *G. elegans*; *G. plicata*; *G. powellii*; *G. subelegans*; *G. tortifolia*. Branch primordia obscured by gemmae — *G. angustifolia*; *G. compressa*; *G. crispata*.

#### Pterobryoideae

With a single exception (*Pireella cavifolia*) filamentous pseudoparaphyllia were found throughout the subfamily. *Pireella cavifolia* has never been found with sporophytes. Arzeni (1954) considered the species "... distinct from all others..." in the genus. The presence of foliose pseudoparaphyllia in this moss suggests its affinities lie with the Neckeraceae rather than the Pterobryaceae. As noted above, even those essentially unbranched members of the group have numerous arrested branch primordia.

#### *Calyptothecium*

All FPP — *C. acutifolium*; *C. acutum*; *C. australinum*; *C. bernieri*; *C. crispulum*; *C. duplicatum*; *C. hoehnelii*; *C. hookeri*; *C. longiusculum*; *C. planifrons*; *C. recurvulum*; *C. subacutifolium*; *C. turqescens*; *C. urvilleanum*.

#### *Hildebrandtiella*

All FPP — *H. longiseta*; *H. pachyclada*.

#### *Jaegerina*

All FPP — *J. brevisuspis*; *J. formosa*; *J. latiscuspis*; *J. robillardii*; *J. retrosquarrosa*; *J. scariosa*; *J. solitaria*; *J. stolonifera*.

#### *Muellerobryum whiteleggei* FPP.

#### *Orthostichidium*

All FPP — *O. cameruniae*; *O. guyanense*; *O. involutifolium*; *O. pentagonum*.

#### *Orthostichopsis*

All FPP — *O. aeruginosa*; *O. auricosta*; *O. crinita*; *O. pinnatella*; *O. scaberula*; *O. subimbricata*; *O. tenuis*; *O. tetragona*; *O.*

*tijucae*; *O. tortilipilis*. Fig. 1 illustrates filamentous pseudoparaphyllia around a branch primordium of *O. tortilipilis*.

#### *Pireella*

FPP — *P. angustifolia*; *P. cymbifolia*; *P. fendleri*; *P. filicina*; *P. guatemalensis*; *P. mariae*; *P. pachyclada*; *P. pohlii*.

PP — *P. cavifolia*.

#### *Pterobryon*

All FPP — *P. arbuscula*; *P. densum*; *P. flagelliferum*; *P. subarbuscula*.

#### *Pterobryopsis*

All FPP — *P. acuminata*; *P. crassiuscula*; *P. cucullatifolia*; *P. divergens*; *P. flexipes*; *P. frondosa*; *P. mexicana*; *P. orientalis*; *P. walkerii*; *P. yuennanensis*.

#### *Renauldia*

All FPP — *R. dusenii*; *R. hildebrandtielloides*; *R. hoehnelii*; *R. lycopodioides*; *R. mexicana*; *R. patentissima*.

#### *Rhabdodontium buftonii* FPP.

#### *Spiridentopsis longissima* FPP.

#### *Symphysodon*

All FPP — *S. neckeroides*; *S. splendens*; *S. subneckeroides*; *S. vitianus*.

#### *Symphysodontella*

All FPP — *S. attenuatula*; *S. convoluta*; *S. cylindracea*; *S. involuta*; *S. subulata*.

### Meteoriaceae

With the exception of *Cryphaeophilum* (discussed below) pseudoparaphyllia are absent throughout this family. One genus (*Lindigia*) may or may not have foliose pseudoparaphyllia. As noted above, distinguishing between foliose pseudoparaphyllia and rudimentary leaves can be a formidable task. Indeed, due to varying concepts as to what is or is not a foliose pseudoparaphyllium it is probably safest to view all reports of foliose pseudopara-

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phyllia as tentative. Certainly when discussing the relationships of mosses on a broad basis, the status of foliose pseudoparaphyllia in any group should be verified personally.

#### *Aerobryidium*

*A. crispifolium*; *A. filamentosum*; *A. fuscescens*; *A. punctulatum*; *A. taiwanense*.

#### *Aerobryopsis*

*A. capensis*; *A. cochlearifolia*; *A. horrida*; *A. leptosigmata*; *A. longissima*; *A. parisii*; *A. scariosa*; *A. subdivergens*; *A. subleptostigmata*; *A. wallichii*.

#### *Aerobryum speciosum*

#### *Ancistrodes genuflexa*

#### *Barbella*

*B. asperifolia*; *B. cubensis*; *B. determesii*; *B. enervis*; *B. flagellifera*; *B. horridula*; *B. javanica*; *B. pendula*; *B. tenax*; *B. tenuissima*; *B. trichophora*.

#### *Chrysocladium*

*C. flammeum*; *C. phaeum*. *C. retrorsum*.

#### *Cryphaeophilum molle*

FPP — (Illustrated by Kohnemann & Gonçalves Carralves, 1976). Dusén (1905) originally placed this species in the genus *Cryphaea*. Its possession of filamentous pseudoparaphyllia, autoicous sexual condition and lack of a central strand in the stem support this placement. Fleischer (1914) established the genus *Cryphaeophilum* for the species and placed the genus in the Meteoraceae on the basis of its pendent habit and elongated leaf cells. My examination of this species indicates that while the elongated upper leaf cells are unusual, the basal leaf cells at the margins are identical to those found in the Cryphaeaceae. Further support for a placement in the Cryphaeaceae is found in its immersed sporophytes, papillose peristome teeth and mitrate calyptrae.

#### *Floribundaria*

*F. aeruginosa*; *F. aurea*; *F. floribunda*; *F. nipponica*; *F. paten-tissima*; *F. pseudofloribunda*; *F. setschwanica*; *F. sparsa*; *F. us-neoides*; *F. walkeri*.

#### *Lindigia* (PP ?).

*L. aciculata*; *L. africana*; *L. capillacea*; *L. debilis*.

#### *Meteoridium remotifolium*.

*Meteoriella soluta* Placed in the Pterobryaceae by Noguchi (1947) and Manuel (1976), the lack of pseudoparaphyllia in this genus supports Brotherus's (1925) original positioning.

#### *Meteoriopsis*

*M. reclinata*; *M. squarrosa*; *M. undulata*.

#### *Meteorium*

*M. buchananii*; *M. illecebrum*; *M. miquelianum*; *M. papillarioides*; *M. subpolytrichum*; *M. teres*; *M. undulifolium*.

#### *Papillaria*

*P. africana*; *P. amblyacis*; *P. chrysoclada*; *C. crocea*; *P. denticulata*; *P. deppei*; *P. feae*; *P. flavolimbata*; *P. flexicaulis*; *P. fuscescens*; *P. helictophylla*; *P. imponderosa*; *P. intricata*; *P. laevifolia*; *P. leucon-aura*; *P. nigrescens*; *P. nitens*; *P. penicillata*; *P. semitorta*.

#### *Pilotrichella*

*P. ampullacea*; *P. communis*; *P. conferta*; *P. cuspidans*; *P. cuspidata*; *P. flexilis*; *P. gracilicaulis*; *P. hexasticha*; *P. holstii*; *P. isleana*; *P. mascarenica*; *P. mauriensis*; *P. muelleri*; *P. panduraefolia*; *P. pentasticha* (sensu Robinson, 1967); *P. perrobusta*; *P. pilifolia*; *P. profusicaulis*; *P. quitensis*; *P. sordidoviridis*; *P. subpachy-gastrella*.

#### *Pseudobarbella*

*P. ancistrodes*; *P. attenuata*; *P. compressiramea*; *P. kiushiuensis*; *P. laosiensis*; *P. levi-eri*; *P. mollissima*.

#### *Squamidium*

*S. brasiliense*; *S. diversicoma*; *S. isocladum*; *S. leucotrichum*; *S. livens*; *S. macrocarpum*; *S. nigricans*. Fig. 2 illustrates a branch primordium of *Squamidium diversicoma*.

#### *Weymouthia*

*W. cochlearifolia*; *W. mollis*.

#### *Zelometeorium*

*Z. allionii*; *Z. ambiguum*; *Z. patens*; *Z. patulum*; *Z. recurvifolium*.

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## Bryology in Panama

By

Noris Salazar Allen

SYSTEMATIC BRYOLOGICAL WORK in Panama started in 1973 with the organization of the Cryptogamic Herbarium at the University of Panama by Dr. N. Salazar Allen. The herbarium housed at that time approximately 60 specimens donated by the Missouri Botanical Garden. As part of the organization of the herbarium, a program of active collecting was pursued in various areas of the Isthmus and specimens were sent to specialists for proper identification. An active exchange program was initiated with different institutions around the world. From October 1978 to January 1979, Dr. Salazar Allen, then with a Masters Degree, went to the Missouri Botanical Garden to work with Dr. M. Crosby on her collections of Panamanian bryophytes. Dr. Crosby has published various lists and articles on the mosses of Panama. Drs. R. and B. Stotler kindly offered to identify her collection of hepatics while Dr. M. Fulford provided valuable historical literature and identification of other specimens.

From January to March 1979, Dr. Salazar Allen worked on her collections of Panamanian lichens with Dr. M. Hale at the Smithsonian Institution, Washington, D.C. Collateral visits to other institutions in the United States, e.g. the Field Museum in Chicago (Dr. J. Engel), University of Illinois at Urbana-Champaign (Drs. C. Augspurger and Z. Carothers) and the University of Florida at Gainesville (Dr. D. Griffin III) gave additional valuable information on old collections, and literature needed to start an herbarium. With properly identified material and further specimens collected through the years, the Cryptogamic Herbarium has grown to nearly 3,000 identified specimens and an equal number of collections that await identification. Most of the collections are from Dr. Salazar Allen, Professors M. Correa, Arrocha, other staff members and students in the Department of Botany of the University of Panama, Dr. Crosby and collectors from the Missouri Botanical Garden.

From 1979 to 1980, Professor Arrocha, then a student of Dr. Salazar Allen, pursued a floristic study of the corticolous moss flora of selected areas in the Barro Colorado Island (Canal Zone) as a B.A. project. Her thesis is the first systematic work on the bryophyte flora of the island.

The island has a surface area of approximately 15.6 km<sup>2</sup> and Professor Arrocha gathered 314 specimens representing 13 genera and 70 species of mosses.

In April of 1980, the Missouri Botanical Garden and the University of Panama organized a Symposium on the Botany and Natural History of Panama. Scientists from different parts of the Continent gathered at the Isthmus and various collecting expeditions were organized. Near the end of that year, Dr. Griffin visited the Cryptogamic Herbarium and helped in the identification of some troublesome material.

From 1981 to 1986, the Cryptogamic Herbarium was in an impasse. Dr. Salazar Allen was abroad doing graduate work and Professor Arrocha was appointed Assistant Professor in the University extension in the western Province of Chiriqui. Assistant Professor D. Vinda, working voluntarily as Assistant Curator of the Cryptogamic Herbarium, helped in maintaining and organizing the collections made during Dr. Salazar Allen's absence. Professor Vinda is interested in hepatics.

In 1984, Professor Arrocha went to Costa Rica to pursue graduate studies with Professor M. Morales. Professor Arrocha and Dr. Salazar Allen have recently returned to Panama. Professor Arrocha is finishing her Masters dissertation. Her research is a floristic study of the Tapantí refuge with a cladistic analysis of the Order Hookeriales. She is currently an Assistant Professor at the University of Panama extension in Chiriqui and is actively collecting in that Province.

Dr. Salazar Allen finished her Ph.D. with Dr. D.H. Vitt (Canada) in July 1986. Her thesis is a worldwide revision of the pantropical moss *Leucophanes*. She is a full-time professor in the Department of Botany at the University of Panama and Curator of the Cryptogamic Herbarium.

The Cryptogamic Herbarium is in the process of reorganization and curation. Active exchange will resume as soon as the specimens are properly curated and sorted. Collecting continues in different areas of the Isthmus and various research projects are currently under way as part of the cryptogamic activities in Panama.

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TAXACOM (contd. from p. 1)

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Richard H. Zander, Curator of Botany and System Operator, and Patricia M. Eckel, Research Fellow and Associate SYSOP, Buffalo Museum of Science, Buffalo, New York 14211, U.S.A.

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## SOFTWARE SERVICE \*

As announced in Bryol. Times 39, we can now offer free computer programs for bryological purposes. These programs can be copied free; they consist either of public domain software or were programmed by bryologists prepared to place their programs at the disposal of their colleagues. Normally copyright is still retained by the author to prevent others making commercial gain from them. In addition, data files are also being offered. Because of compatibility problems, the offers are sorted by different hardware/software requirements. The programs can be obtained on request from the authors (name in brackets after the program name). Please send a blank, formatted disk. The IBM (and compatibles) freeware is obtainable from J.-P. Frahm, who can also provide a list of other free software that is available. For any disks that he does not have in stock, a fee of US \$ 7.-- must be charged.

The listings are in alphabetical order in each category.

IBM and compatibles (Double sided diskette, 40 tracks, 360 Kbyte)

## GW-BASIC or IBM BASICA

BACCHUS (O'Shea) A set of programs in BASIC for maintaining a small herbarium. Includes a variety of printed reports, including labels. Contains a file of names of all UK bryophyte taxa. Being redeveloped in dBASEIII+. Also available in CP/M version (Microsoft Basic v.5).

Easymail (freeware) Mailing list programs.

Easyword (freeware) Word processor.

Herbarium labels (Frahm/Rettig), see Bryol. Times 23: 4-5 (1983). Modified version with a header (which can be changed as required) which differentiates between the first specimen ("Herbarium NN") and duplicates ("ex herb. NN").

IBM Label (freeware) For address files

Labelcreator (freeware)

\* A contribution to the Computer Column, edited by J.-P. Frahm and B. O'Shea. For addresses, see Bryol. Times 31:9.

Labelpro (freeware) Powerful program (22 Kbyte, with clock!), edits and saves labels, various choices for additions, corrections, various print choices (expanded, italics etc), allows multiple copies to be printed of several different labels. It has only 6 lines of 41 characters, for variable information. The present version allows a 2 line header, three blank lines for the species name and 6 lines of label-information.

PC-Graf (freeware) Plots line drawing graphs of data sets.

Statistics (freeware) Includes mean, variance, standard deviation; exponential regression, linear regression, Chi-Square-Test, Linear correlation coefficient, normal distribution, Regression analysis etc., etc.

## MS-DOS

## Databases:

ABC Database (freeware)

Easyfile (freeware)

File-express (freeware) A powerful and easy-to-use information management system.

Infobase (freeware) Database management system with mailmerge capability.

PC-File (freeware) Advanced data base program, for instance for herbarium management, with a label utility. 40 page manual on disk.

3x5 Cards (freeware) System for handling the sort of data you would normally store on 3"x5" cards, as for a library catalogue. Allows searching for every word, or sequence of signs.

## Word processors:

Easywrite (freeware) A simple, menu-driven word processor. Very limited in facilities, and files can only be up to 200 lines.

PC-Write (freeware) Sophisticated, yet popular and easy to use word processor, PC-FILE compatible. This is now commercially available in the UK, so only versions earlier than 2.6 are free. Our copy is version 2.55. All versions still free in the US.

Workflex Wordprocessor Version 1.60 (freeware)

## Address label programs:

Address (freeware)

Address manager (freeware)

Labelfile (freeware) Easy-to-use program similar to Labelpro (see BASIC section above). Writes 6 and 9 line labels.

Labels (freeware) Includes facilities such as zip-code sorting.

BIDS (O'Shea) A bryophyte identification system. Still under development, so delivered software is only a prototype. Supplied with a set of empty files, but also with a small demonstration set of files containing the data for the 23 UK Tortula taxa.

Book Index (freeware) Sets up data file, allows entry of new information, sorts and merges new entries, formats an index, prints lists.

Epistat statistics Version 3.0 (freeware) Contains amongst others: Chi-square Test, Binominal Distribution, Bayes Theorem, analysis of variance, Fisher's exact Test, Linear Regression etc. etc.

List of UK bryophyte taxa, with authorities (O'Shea) Available as dBASEIII, WordStar or BASIC file, or as part of BACCHUS (see above). (Names and authorities are from Corley and Hill (1981).)

Lit (O'Shea) Simple dBASEIII+ bibliographic system for storing literature references. Links to a journals database for standardising references. Will output to printer, but output really needs to be tidied up via a word processor before being printed.

PC-Calc (freeware) A spreadsheet, with 86K documentation on disk. Similar to Lotus 1-2-3.

Reflist (freeware) Program to file your reprints, 32K instructions on disk.

Slide Generation (freeware) Creates, saves, displays and prints images for overhead transparencies and slides.

## APPLE II

Address file of the bryologists of the world (Vitt). Contains an updated list published in the "Conspectus" (WordStar file).

[continued on page 6.]

Software Service [Computer Column continued from page 5.]

**COMMODORE 8000-series** (disk single sided, 78 tracks, 500 Kbyte).

**Herbarium labels** (Frahm/Rettig) (See under IBM). German and English versions available.

**Cluster Analysis** (Frahm/Rettig) see *Bryol. Times* 32: 5 (1985).

**Distribution maps** (Frahm/Rettig) see *Bryol. Times* 30:5 (1985). A plotter is required for this version. It works only with special base maps of Germany (which can be provided for demonstration purposes), but can be adapted to any other rectangular grid system.

**Identification strips** (Frahm) Allows the printing of labels with up to 6 rows text, 40 characters broad, in one or two columns or one column/double width.

**COMMODORE 64/128** (disk single sided, 35 tracks, 170 Kbyte).

**Cluster Analysis** (Vanmaele/Empain). Modified version of the program for Commodore 8000, needs no plotter; printout on matrix printer.

**Herbarium labels** (Frahm/Rettig) See under Commodore 8000.

**Identification strips** (Frahm) See under Commodore 8000.

#### CP/M

**BACCHUS** (O'Shea). See under MS-DOS.

**Herbarium labels** (Magill). Written in C-BASIC, specifically tailored for Kaypro II and Osborne 01.

Jan-Peter Frahm, Universität Duisburg, Fachbereich 6, Botanik, Postfach 10 16 29, D-4100 Duisburg, Federal Republic of Germany.

Brian O'Shea, 131 Norwood Road, London SE24 9AF, UK.

#### SPECIAL INTEREST GROUP MEETING, BERLIN 1987

Tropical bryophyte taxonomy and floristics of the Pacific

By Harvey A. Miller

INTERESTED BRYOLOGISTS are invited to participate by presenting a report on their work on Pacific bryophytes of either floristic or monographic nature or by attending the meeting to participate in the discussions. The organizers (D.H. Vitt, H.O. Whittier, R.M. del Rosario & H.A. Miller) hope to stimulate communication and the study by specialists of recent large and unreported collections from Pacific islands.

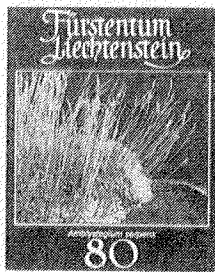
A synopsis of the proceedings will be made available to all who express an interest in the program even if they are unable to attend the Congress.

Please contact Professor H.A. Miller, Department of Biological Sciences, University of Central Florida, Orlando, Florida 32816, U.S.A., if you wish to present a report at the meeting, or otherwise participate.

#### BRYOLOGICAL BOOK OF RECORDS

Mosses on Stamps

By S. W. Greene



Are these the only ones that have been issued? My thanks to Miss M. Short of the Department of Botany of the British Museum (Natural History) who told me about them.

#### Membership of IAB

THE FOLLOWING LIST for the period 1 September 1986 - 15 February 1987, updates those already published. The last list appeared in *Bryol. Times* 40:5.

##### New Members

Chauhan, E. Department of Botany, Deshbandhu College, University of Delhi, Kalkaji, New Delhi 110 019, India.

Equihua, Clementina, Florida State Museum, University of Florida, Gainesville, Florida 32611, U.S.A.

Fränzel, Urs. Langwartweg 101, D-5300 Bonn 1, Germany, B.R.D.

Kindermans, P.J. Abel Tasmanlaan 252, 3133 AE Vlaardingen, The Netherlands.

May, Rudolf. Acignering 88, 4175 Wachtendonk, Germany, B.R.D.

Pietschmann, Martin. Dipl. Biol. Inst. f. Syst. Botanik, Menzingerstrasse 67, 8 München 19, Germany, B.R.D.

Reinoso Franco, Juan. Depto. de Biología Vegetal, Fac. de Biología, Universidad de Santiago de Compostela, Spain.

Rohrer, Joseph, R. Illinois Natural History Survey, 607 East Peabody Drive, Champaign, Illinois 61820, U.S.A.

Seeger, Tassilo. Römerstrasse 6, D-6670 St. Ingbert, Germany, B.R.D.

Squazzin, Francesco. v. Selvotta 61, 33055 Muzzana del Turgnano (Udine), Italy.

Wingfield, Robert. Apdo. 7357, Coro, Falcon, Venezuela.

##### Change of Address

Cleef, Antoine M. Jan Steenlaan 13, 1412 JS Naarden, The Netherlands.

Cohen Stuart, J.A.F. Sitio-park 11, 3941 PR Doorn, The Netherlands.

Hill, Mark O. Monks Wood Experimental Station, Abbots Ripton, Huntingdon PE17 2LS, England, U.K.

Smith, Douglas R. University of Guam, UOG Station, Mangilao, Guam 96923, U.S.A.

## Goode Base Maps

OVER THE LAST TEN YEARS or so, the base maps produced during the 1960's (and earlier) by Goode Base Maps, University of Chicago, have become increasingly scarce. These maps are no longer printed and copies are only available when made from privately reproduced maps.

I have quite a few of the Goode Base Maps that I have saved over the years, and I am happy to make these available to bryologists who might have use for them. I have single copies of these maps available for anyone needing a good master copy from which to make additional copies. Or, if desired, I can have multiple copies made here at the University of Alberta for \$0.10 a copy. These copies are of excellent quality and suitable for publication.

Anyone interested should write to Professor D. H. Vitt, Department of Botany, Room B-414 Biological Sciences Building, The University of Alberta, Edmonton, Alberta, Canada T6G 2E9.

### CHANGE OF ADDRESS

DR. R.N. SCHLJAKOV of the Polar-alpine Botanical Garden, Kirovsk 6, Murmansk, U.S.S.R., has recently moved to Leningrad and is now working at the Department of Cryptogams, Botanical Institute of the Academy of Sciences of the U.S.S.R., Prof. Popov St., 2, Leningrad P-22, U.S.S.R.

## Recent Publications

*Bryolog. Beitz.*, 6: 1-131, 1986.

Piippo, S., 1986. A monograph of the genera *Lepidolejeunea* and *Luteolejeunea* (Lejeuneaceae, Hepaticae). *Acta Bot. Fenn.*, No. 132: 1-69.

The characters are described of *Lepidolejeunea*, a pantropical genus of epiphytes or epiphylls, as are those of the twelve species, grouped in three subgenera. The boundaries of the subgenera are revised and each species is illustrated and its distribution mapped. *Luteolejeunea* is a new monotypic genus described by the author for a tropical South American species formerly placed in *Stictolejeunea*. Its characters are described, illustrated and its distribution is mapped.

### STOP PRESS

NOVEMBER 1987. John Child Memorial Foray to northern part of South Island, New Zealand. Further details from: Ms Gail Franho, Cawthorn Institute, P.C. Box 175, Nelson, New Zealand.

Greene, Dorothy M., 1986. A conspectus of the mosses of Antarctica, South Georgia, the Falkland Islands and Southern South America. Cambridge, British Antarctic Survey, 314 pp. Available from: The Distribution Centre, Blackhorse Road, Letchworth, Herts., SG6 1HN, England. Price £7.00.

This is a literature compilation of all mosses recorded from the areas indicated from earliest times up to the end of 1977. Southern South America is defined as Argentina, Chile, Uruguay and Juan Fernandez.

Apart from some stated exceptions, nomenclature is based on *Index muscorum*, as is reasonable for a work of this kind. It results in a check list for the whole region of 1,727 species and 254 subspecies or varieties. The list of synonyms includes basionyms and those epithets which have been used for material from the area, but is not nomenclaturally exhaustive. Some 60 nomina nuda are also listed since specimens bearing these names are frequently encountered in herbaria. The work is very clearly and logically laid out, taking the form of a consolidated, alphabetical list of genera and species with the use of bold italics, ordinary italics and ordinary Roman distinguishing between accepted names, synonyms and illegitimate names respectively. It is thus very easy to consult.

The last attempt to synthesize knowledge for this part of the world was by Cardot (1908) in *La flore bryologique des Terres Magellaniques, de la Georgie du Sud et de l'Antarctide*. Since then, a vast and scattered literature has been published, as evidenced by the author's bibliography of over 900 items. It is this bibliography, together with the detailed citation of specimens, that gives this work its strength, since for every species each reported occurrence is fully documented. From an examination of some of these records it is apparent that knowledge of many taxa is based on one examination of a single specimen, the details of which are reported again and again in subsequent publications.

It is to be hoped that others will take the time and trouble to produce comparable works for other little-known parts of the world, since the author's approach is highly appropriate for large regions with a scattered literature. She is to be congratulated on an excellent synthesis from which monographers, phytogeographers and others can make a start on discovering what is and what is not known about the region's moss flora.

## Personalia

DR. Y. KUWAHARA, 10-2139, Miimachi, Kurume, Fukuoka, 830 Japan, has written to say that he is still unable to accept specimens for examination and asks that none be sent to him. A notice will be published in the *Bryol. Times* when he is again able to examine specimens.

## DIARY

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

1987

April 1-8. BBS. Spring field meeting, Penzance, Cornwall. Local Sec.: Mrs. J.A. Paton, Fair Rising, Wagg Lane, Probus, Truro, Cornwall TR2 4JU. For details see *Bull. BBS*, 48:13.

April 4. VWGB. Field trip to Zwinbosjes-Het Zoute (Prov. of West Vlaanderen). Meet in front of parking area, Het Zwin, 90.30 hrs.

April 23-26. Fifth Midwest bryophyte foray, Shawnee Hills, Southern Illinois. For registration and further information, contact Bill N. McKnight, Botany Section, Illinois Natural History Survey, 607E, Peabody Drive, Champaign, IL 61820, U.S.A.

May 1-3. VWGB. Bryological weekend near Buzenol (Ardennes). Details to be announced.

May 7. Joint BBS-Linnean Society Meeting, London. For preliminary information see *Bryol. Times*, 40:9. Enquiries and booking: The Executive Secretary, The Linnean Society of London, Burlington House, Piccadilly, London W1V 0LQ.

June 13-14. SBLs. Annual Assembly. Bernese Oberland. Further information from: Dr. K.A. Ammann, Syst.-Geobot Institut, Altenbergrain 21, CH-3013, Bern, Switzerland.

Mid July. NBS. Annual business meeting and excursion. Isle of Fyn. Further information from G.S. Mogensen, Botanical Museum, Gothersgade 130, DK-1123, Copenhagen K., Denmark.

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 Session, July 20-24. Latest announcement in *Bryol. Times* 41:9.

## DIARY [contd.]

- address: XIV IBC. Bot. Garden and Museum, Königin-Luise-Strasse 6-8, D-1000, Berlin (West) 33, Germany.
- Aug. 3-7. BLAM. Field excursion to the Allgäu, Southern Bavaria. For further information, see Bryol. Times 41:9.
- Aug. 5-19. BBS. Summer field meeting, Achill Island, Co. Mayo (1st week) and Westport (2nd week). Local Sec.: Dr. D. M. Synnott, National Botanic Gardens, Glasnevin, Dublin 9, Ireland. For preliminary information see Bull. BBS, 47:14.
- Aug. 7-8. ABLs. Foray in Ohio. Leqder J.A. Snider, Dept. of Biological Sciences, University of Cincinnati, Ohio, 45221, U.S.A.
- Aug. 9-13. ABLs. Annual Meeting in conjunction with AIBS Meeting, Ohio State University, Columbus, Ohio, U.S.A.
- Aug. (2nd half) SBLS. Inventory of cryptogams in the Alluvial deposits of the Gauli Glacier. Further information from Dr. K.A. Ammann, Syst.-Geobot. Institut, Altenbergrain 21, CH-3013, Bern, Switzerland.
- Aug. 21-23. BSJ. 16th Annual Meeting at Zao, Yamagata-ken, with paper-reading sessions and field study on Mt. Jizogadake, Zao mountains. Further information from Mr. S. Ono, Yonezawa Higashi High School, Marunouchi 2-chome, Yonezawa-shi, Yamagataken 992, Japan.
- Aug. 26-30. SBLS. Annual Field Trip in Samnaur, Grison. Further information from Dr. K. A. Ammann, Syst.-Geobot. Institut, Altenbergrain 21, CH-3013, Bern, Switzerland.
- September. The 12th Annual Andrews Foray will be held in Maine, U.S.A. Write to: Dr. Nancy Slack, Biology Dept., Russell Sage College, Troy, NY 12180 or Dr. Robert Thomas, Dept. of Biology, Bates College, Lewiston, ME 04240, for further information and to be added to the mailing list.
- Sept. 6. VWGB. Field trip to Braakman/Terneuzen (Netherlands). Meet at recreation area 10.00 hrs.
- Sept. 26-27. BBS. A.G.M. and paper-reading meeting, Wye College, Kent. Local Sec.: Dr. M.A.S. Burton, MARC, The Otago Building, 459A Fulham Road, London SW10 0QX. For preliminary notice, see Bull. BBS. 47:14.
- Oct. 2-4. 3rd Annual Blomquist Bryological Foray, North Carolina, U.S.A. Based on Fontana Village, close to the Fontana Dam. Application forms and further information from the organizers: Brent Mishler, Department of Botany, Duke University, Durham, NC 27706; or Marie Hicks, Department of Biology, Appalachian State University, Boone, NC 26808, USA.
- Oct. 4. VWGB. Field trip to De Maten/Genk (Prov. of Limburg). Meet at entry reserve, 09.30 hrs.
- Nov. 4. VWGB. Field trip to Herselt/Westerlo (Prov. of Antwerpen). Meet at Herselt Church at 09.30 hrs.
- 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. 47:14.
- U.S.A. Write to: Dr. Nancy Slack, Biology Dept., Russell Sage College, Troy, NY 12180 or Dr. Robert Thomas, Dept. of Biology, Bates College, Lewiston, ME 04240, for further information and to be added to the mailing list.
- July 19-23. Joint BBS-British Ecological Society Meeting, Edinburgh. International Symposium on bryophyte ecology. For preliminary information, see Bryol. Times 40:9. Local Sec.: Dr. P.J. Lightowers, Institute of Terrestrial Ecology, Bush Estate, Penicuik, Midlothian, Scotland, EH26 0QB.
- July 24-30. BBS. Summer field Meeting, Aigas Field Centre, Beauly, Invernesshire. Local Sec.: Dr. P.J. Lightowers. Participants at the BBS ecological symposium (see July 19-23) will be most welcome.
- Aug. 7-11. ABLs Annual Meeting in conjunction with AIBS meeting, University of California, Davis, U.S.A.
- Aug. 31-2 Sept. Phytochemical Society of Europe. Saarbrücken. International symposium on the chemistry and chemical taxonomy of bryophytes. Further information from Prof. H. D. Zinsmeister or Dr. R. Mues, Fachrichtung Botanik der Universität der Saarlandes, D-6600 Saarbrücken 11, B.R.D.
- Sept. 12. 6th CEBWG Meeting, Liblice (Village near Mělník), Czechoslovakia. For preliminary announcement of this 4-5 day meeting, see Bryol. Times 40:10.
- Sept. 17-18. BBS. A.G.M. and paper-reading meeting, Liverpool. Local Sec.: Dr. J. Edmondson, County Museums Dept., William Brown St., Liverpool L3 8EN, U.K.

1989

Aug. 6-10. ABLs Annual Meeting in conjunction with AIBS Meeting, University of Toronto, Canada.

1990

Aug. 12-18. Helsinki, Symposium on SE Asian bryophytes. See preliminary announcement in Bryol. Times 41:4.

THE INTERNATIONAL ASSOCIATION OF BRYOLOGISTS publishes The Bryological Times every two months, the Bulletin of Bryology twice a year and the Advances in Bryology irregularly. Material for the Bryological Times can be sent at any time, but submission dates for the Bulletin and the Advances should be discussed with the Editors, Dr. Diana G. Horton (University of Iowa) U.S.A. and Dr. Norton G. Miller (Albany) U.S.A. respectively. 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, Institute of Systematic Botany, Heidelberglaan 2, 3584 CS Utrecht, The Netherlands.

THE BRYOLOGICAL TIMES is published in Utrecht and distributed from Beijing (China), Eger (Hungary), Reading (U.K.), St. Louis (U.S.A.), Tokyo (Japan) and Utrecht. All correspondence concerning mailing to: Rob Kruijt, Institute of Systematic Botany, Heidelberglaan 2, 3584 CS Utrecht, The Netherlands.

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 the 1st of May, 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.