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No. 20

## THE STRUGGLE FOR TRUTH

By R. S. Chopra

PROFESSOR CAMPBELL (1895, Structure and development of mosses and ferns, London) noted a similarity between the sexual organs of the Anthocerotales and the fern *Marattia*, and so found a kinship between the Anthocerotales and the pteridophytes (vide Geobel, 1905 Organography of plants, London, pp. 185-86). Professor Geobel (l.c.), after briefly noting that the structure of the antheridium in the Anthocerotales is like that which occurs in other hepatics but is known in none of the Pteridophyta, wrote, "The comparison seems to me to be bred of the wish to discover points of relationship between the Bryophyta and the Pteridophyta, and not to be founded on facts."

The former Professor (1925 Flora, N.F., 18-19: 62-76), twenty years after the publication of the English translation of the 1898 work of the latter professor, again compared the sexual organs of *Notothylas* with those of *Marattia*. Further, impressed by the sporogonium of *Anthoceros fusciformis* growing under exceptionally favourable circumstances, concluded (p. 74) that a close resemblance between this sporogonium and the Devonian *Rhyniaceae* warrants the assumption of a real relationship between the latter and the Anthocerotaceae. He overlooked the fact that the Anthocerotales are the only archegoniate taxon with a basal meristem.

Professor Bower (1935, Primitive land plants, London) concluded that the sexual organs of the Anthocerotales, notwithstanding their being sunken in the thallus, are clearly of the hepatic type. He wrote: "Before basal intercalary growth alone no morphological future seems to be open" (l.c. p. 109).

Professor Campbell (1940, The evolution of land plants, Allahabad) derived the Psilophytales or the Rhyniaceae from the Anthocerotales. This had the effect of "catapulting" this taxon to an unwarranted position. Many authors continue to follow him.

Professor Takhtajan (1953, Bot. Rev. 19: 1 - 45) had the converse view of the relationship between the Psilophytales and the Bryophyta. He did not explain how the apical meristem of the Psilophytales became basal during the course of evolution from the Psilophytales to the Bryophyta.

The same year, Professors Mehra and Handoo (Bot. Gaz., 114: 371-382) published their concept of the "Antho-rhyniaceae". In doing so they not only overlooked the points of view of Professors Geobel and Bower (mentioned above), but ignored the features of the sporogonium of *Anthoceros* and the sporogonium of *Rhynia* (cf. Bower 1935, p. 120).

The capsule wall in *Anthoceros* has four distinct lines of dehiscence, though only two of them are functional (cf. Proskauer, 1948. Ann. Bot. (London) II, 12: 427-439) but these are lacking in *Rhynia* as are sterile bodies mixed with spore mother cells or spores. Tapetal layer /layers present in *Rhynia* are absent in the Anthocerotales.

Proskauer (1960, Phytomorphology 10: 1-19) writing on this relationship remarked, "I do not wish to expostulate at length on the psilophytic ancestry of Anthocerotales. At present no firm proof can be brought.... I have no quarrel with the postulated "Antho-rhyniaceae" of Mehra and Handoo, 1935." (pp. 15 - 16)

Professor Mehra (1969, Conquest of land and evolutionary patterns in early land plants, Birbal Sahni Institute of Paleobotany, Lucknow, publication p. 24, fig. 9), removed the Anthocerotaceae from the

Bryophyta, particularly the Hepaticae, to which they belong, as indicated by an overwhelming majority of features, and placed them along with the ancestors of terminal sporangiate tracheophytes.

A dispassionate review leads to the conclusion that neither the Anthocerotales nor the Psilophytales are the ancestors of the other taxon, and that the Anthocerotales are hepatics.

### A Suggestion

This suggestion is primarily for the consideration of younger colleagues. While preparing a manuscript, do not ignore a view already expressed, even if it is counter to your own thoughts. Try to refute the counter argument or decide which view is the more tenable on the basis of overwhelming evidence based on as many features as it is possible to bring to bear on the topic.

2132 Sector 15-C. Chandigarh, India.

## PLANNED BRYOPHYTE FLORA OF AUSTRALIA

THE BUREAU OF FAUNA AND FLORA who are co-ordinating the writing of the Flora of Australia held a two-day workshop to plan for the Volumes on Bryophytes. The Vascular Plants will appear in 48 Volumes of which volume 1 Introduction and Volume 29, Solanaceae have now been published. Bryophytes will appear in Volumes 49 and 50 (51?). Dr. Alison McCusker, Assistant Director (Flora) of the Bureau, Dr. Helen Hewson (Flora writer) and Dr. Alex George (Editor) met with George Scott, David Catchside, Ilma Stone and Helen Ramsay to plan the volumes. Matters discussed included classification, format of descriptions, priorities for research, illustrations, etc. It is hoped that the Volume[s] on mosses will be completed in the early 1990s to be followed by the liverworts within about two years.

Source: Australasian Bryol. Newsletter No. 7, October, 1982.

## Techniques Notebook

## Presentation Suggestions

AT PROFESSIONAL MEETINGS we must face audiences from a wide range of disciplines and languages with only bryophytes as our common denominator. Most of us spend many hours on our research and writing papers, with only 15-20 minutes in which to make our presentation clear to an audience, some of whom may be struggling to understand both a foreign language and an unfamiliar speciality. Therefore visual aids are a must, because most people can understand written English better than a multitude of spoken accents.

Since I have been asked many times how I make the type of slide I used in Sydney, I shall describe my techniques.

Presentations of graphs, figures and data soon become dull. Yet most of our work is not represented by pretty pictures, and we must keep the total number of slides to a minimum. Therefore, to provide aesthetic qualities and vary my presentation, I have used a technique similar to double mounting.

First I draw my graph on white paper with bold lettering. Letters should have a height which is at least 4% of the height of the viewing area of a slide. Standard pica and elite type are hard to read, so the large type such as IBM orator (with a space between each letter) or rub-on lettering is advised. Use the middle of the page and provide wide margins. Then select 35mm slides with large light-coloured areas (the white of streams, waterfalls, sunsets or clouds are good) and project these on to the white paper with the graph. The projection can be moved around and enlarged to provide the best "frame" for the graph. Once a clear image of the graph is coupled with a suitable frame, one can either photograph this projection or mark the portion of the "frame" slide to be duplicated and enlarged. If the projection method is used, full spectrum white light can be used to soften the "frame" slide and maintain sharpness of the graph. Cool white lights distort the colour slightly. An even better picture can be obtained by enlarging the "frame" to its proper size, and double mounting with a slide made of the graph.

Simple data sets (e.g. a

list of 4 - 8 species), lists of objectives, summary points, and a list of experimental conditions can all be mounted this way. A soft view of the laboratory behind a listing of temperature, photo-period and light intensity, for example, takes your audience into the lab with you. But keep it simple! The "frame" must not detract from the graph or list. And complex graphs and lists should usually not be framed.

Be sure each illustration is self-explanatory. Axes should be labelled. Relationships should be obvious at a glance. When no "frame" is used, make use of colours to keep lines separate. In his presentation at a Nordic Bryological Society Meeting, Gert Mogensen used one colour for all transparencies relating to southern mosses and another colour for northern ones. This gave the viewer a colour flag to help him remember the two sets of information.

If you are talking about only one species, a habitat shot and a close-up of your bryophyte can help the non-taxonomist, but only if they are of good quality. When no good photograph is available, a line drawing might help. A picture is worth more than 1000 words when your listener is struggling with your language, so illustrate all your important results with graphics, and summarize your conclusions with an illustration or printed words.

If your talk is not too long, one or two humorous but appropriate slides might be inserted, but they should be such that an international audience can appreciate them, relying on the picture rather than on the words.

To finish your talk, and avoid the awkward moment when your audience doesn't realize you have finished, make THE END slide with an appropriate background.

Janice M. Glime, Department of Biological Sciences, Michigan Technological University, Houghton, Michigan 49931, U.S.A.

## AGENDA : What to reply ?



## IAB CONFERENCE, TOKYO

THE THIRD CIRCULAR will be sent out early in April. It contains many valuable details essential to those attending the Conference, but it does not include a list of lecture titles.

Deaths

BENEDIX, Erich Heinz, on 11th March, 1983.

HODGSON, E.A. on 7th January, 1983.

Eliza Amy Hodgson of Wairoa, New Zealand, died on January 7, 1983 at the age of 94. Particularly she is remembered for her many publications dealing with the structure and taxonomy of New Zealand liverworts, and for her herbarium.

She was a Fellow of the Royal Society of New Zealand and of the Linnean Society of London, and in 1976 received an Honorary Degree of Doctor of Science from Massey University, Palmerston North, New Zealand. These were fitting rewards for one who accomplished so much from an isolated farming home. She truly laid the foundation for all future studies on New Zealand liverworts.

Ella Campbell, Massey University, Palmerston North, N.Z.

Desiderata

I AM CURRENTLY WORKING on the genus *Fontinalis* in Australasia. In preparation for my visit to Australia from July - September inclusive, 1984, I would like to hear if anyone knows of any specimens of the genus from Australia or Tasmania, or of any literature reference to its occurrence in either area.

Mlle. A. See. Laboratoire de Cryptogamie, Muséum National d'Histoire Naturelle, 12 rue de Buffon, Paris 75005.

IN ORDER TO FURTHER MY STUDIES of variation in the genus *Philonotis*, I am always interested to receive specimens of European material. In return I will be happy to identify specimens of this genus from any part of the European continent.

J.H. Field, 34, Wells Green Road, Solihull, West Midlands, England.

LOST OPPORTUNITY FOR BRYOLOGY

IT WAS DISAPPOINTING that Dr. Harvey Miller was unable to attend the Pacific Science Congress in Dunedin, New Zealand in February. However, the bryologists present found much in common with the Pteridologists who used the opportunity to hold a meeting of the International Association of Pteridologists. Dr. John Child generously organized an excursion to a bryophyte-rich area and combined with Dr. Peter Bannister and the Pteridologists on a visit to another. The post congress excursions to Fiordland and Westland in perfect weather provided an opportunity to observe the very rich and colourful bryophyte vegetation clothing the precipitous valley walls and tree trunks.

Recently Allan Fife and John Engel of U.S.A., and Uri Gerson of Jerusalem, have been collecting in New Zealand.

Dr. Ella Campbell, Massey University, Dept. of Botany and Zoology, Palmerston North, N.Z.

Letters to the Editor

Dear Sir,

An International Coupon for paying dues to Societies

SENDING DUES TO FOREIGN SOCIETIES may be a simple matter for many people, but it is not for others, because conditions differ widely from country to country.

In Japan, it is quite different from just sending a personal cheque, taken from the desk drawer in North America, since the personal cheque is not at all popular here. Foreign cheques from banks can be obtained only at the major City Bank Offices. The most popular and best is postal finance, although its historical, primary role has already ceased in Western countries. So the easiest way of sending dues here is by international postal money order. Its inconveniences include: it may not be accepted in some countries, e.g. in U.K. it was not accepted at one time, but it is now again available since October 1981; it is accepted only at the main post offices; its procedure is not quite appropriate, and in some cases the payee may not identify the remittance. As to the postal giro system, apparently most Societies have not registered and so cannot receive a remittance. It can easily be imagined that various problems,

which sometimes cannot be worked out, are present in many countries.

The Societies, on the other hand, are also much concerned about these problems, as seen in their distributed notes about payment and notices published in periodicals. They kindly arrange overseas agents for easier payment and instruct a certain way of remittance for avoiding high bank charges. It is not nice and it is a pity that the scientific organizations must be so anxious about receiving their dues.

Why not consider the invention of an International Coupon for paying scientific societies dues? I propose that someone looks into its feasibility with e.g. UNESCO. Such a system would benefit not only the present members and Societies, but also greatly help many lovers of natural history studies who are encouraged in many regions of the world to become interested in membership of International Societies. If a plan is rather "idealistic", its implementation and practical use often tend to become limited, so I would like to emphasize that very careful studies of such a system should be required for securing its authentic, practical and wide use by those people.

Y. Kuwahara, 10-2139, Mii-machi, Kurume, Fukuoka, 830 Japan.

Botanical Museum Helsinki

DUE TO MANY OVERLAPPING STAYS of foreign visitors, and the scarcity of high-quality research equipment in the Cryptogamic Herbarium, Botanical Museum, University of Helsinki (H), bryologists and other botanists who plan to stay with us for any length of time, are asked to bring their own microscopes.

T. Koponen, Head Curator, Botanical Museum, University of Helsinki, Unioninkatu 44, SF-00170 Helsinki 17, Finland.

Recent Publications

Bryologische Beiträge 2, 1-115, 1983.

Miscnea Bryol. Lichen 9(6):117-136. 1982.

Novit. Syst. Plant. non Vasc. 19: 1-216, 1983.

Mitten G. 1869, Reprinted 1982. *Musci Austro-Americani*, a reprint of the original edition in the Journal of the Linnean Society, Botany. 659+vi pages. Paper. Monographs in Systematic Botany from the Missouri Botanical Garden, No. 7.

Available from Missouri Botanical Garden, PO Box 299, St. Louis, MO 63166, U.S.A. Price U.S. \$ 15.00.

MOSSES FROM  
CZECHOSLOVAKIA  
Available on Exchange

I HAVE MANY MOSSES from the Czechoslovakian part of the Carpathian Mountains available for immediate exchange. I would like to receive equal numbers of moss specimens of any species from any part of the world. Those interested should write to Dr. Zdenek Pilous, Komenskeho Str. 433, 543 71 Hostinne, Czechoslovakia.

## DIARY

BBS=British Bryological Society; BLAM=Bryologish-Lichenologishe Arbeitsgemeinschaft für Mitteleuropa; CEBWG=Central and East European Bryological Working Group; NBS=Nordic Bryological Society; OPT-BWG = OPTIMA Bryophyte Working Group; SBLS=Swiss Bryological and Lichenological Society.

May 6-8. SBLS. Locarno (Ticino). Annual meeting with excursion. Further information from Dr. K. Ammann, Syst.-geobot. Institut, Altenbergrain 22, CH-3013, Bern, Switzerland.

May 22-28. Tokyo. World Conference of Bryology. See Bryol. Times 14:4 and 18:2. Further details from: Dr. Z. Iwatsuki, Hattori Botanical Laboratory, Obi, Nichinan-shi, Miyazaki Prof. 889-25, Japan.

June 6-12. OPT-BWG. Palermo, Sicily. Symposium on Mediterranean Cryptogamic Botany. Further information from: Dr. C. Heyn, Dept. of Botany, The Hebrew University of Jerusalem, Israel. See Bryol. Times 14:5.

July 1-9. NBS Laugarvatn, Iceland. Annual Meeting and excursion. Organizers: A.B. Bjarnason, Laugateigur 39, 105 Reykjavik and B. Johannsson, Dept. of Botany, Museum of Natural History, Box 5320, Reykjavik, Iceland. Further details from organizers.

July-Aug. BBS. Summer Field Meeting, Kerry, Eire. Local Sec. Dr. D. Synnott, National Botanic Gardens, Glasnevin, Dublin 9, Eire. (Full details in Bull. BBS 41:16.

Aug. 26-30. SBLS. Field Meeting Bernese Oberland, Giessbachfälle-Rosenlauri. Further information from: Dr. K. Ammann, Syst.-geobot. Institut Altenbergrain 22, CH-3013, Bern, Switzerland.

Aug. 31. BBS. Closing date for Jubilee Photographic Competition. See Bryol. Times 19:3 and Bull. BBS 41:20

Sept. 2-4. BLAM. Field Meeting in the Hochvogesen. See Bryol. Times 19:5

Sept. 2-9. BBS. Manchester. Joint BBS-Systematics Association Bryophyte Taxonomy course. Bryol. Times 19:3, and Bull. BBS 41:17.

Sept. 17-18. BBS. Jubilee Meeting, London. Local Sec. Mr. P.J. Wanstall, Dept. of Plant Biology and Microbiology, Queen Mary College, University of London, Mile End Road, London E1 4NS. (Full details in Bull. BBS 41:17.)

Oct. 21-23. 3rd Annual mid-west Bryological foray, West Central Indiana, USA. For further details see Bryol. Times 19:2.

Oct. 24-28. BLAM. Bryophyte course with preceding 2 - day field

meeting in Allgäu. See Bryol. Times 19:5.

Nov. 12-13. SBLS. Zurich or Bern. Bestimmungstage (identification days, taxonomic workshop). Further details from: Dr. K. Amman, Syst.-geobot. Institut Altenbergrain 22, CH-3013, Bern, Switzerland.

Nov. 26-27. BBS. Taxonomic Workshop, London. Local Sec.: Miss J. Ide. White-lands College, West Hill, London SW15 3SN. (Preliminary details in Bull. BBS 41:18.

For details of BBS local meetings during 1983, see Bull. BBS 41:18.

### 1984

April. BBS. Spring Field Meeting, Herefordshire/South Wales. (Preliminary notice in Bull. BBS 41:18.)

July. BBS. Spring Field Meeting, N.E. England/South Scotland. Preliminary notice in Bull. BBS 41:18.)

September. BBS. Paper-reading meeting and A.G.M., Warwickshire. (Preliminary notice in Bull. BBS 41:18.)

### 1985

August. CEGWG. Eger, Hungary. 4th Biennial Meeting. For preliminary information see Bryol. Times 18:3.

August. IAB. Budapest and Vác-rátót. Ecology Symposium. For preliminary information see Bryol. Times 18:3.

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. Schultze-Motel (Berlin). 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 the 15th June at the latest. Items for the Techniques Notebook should be sent direct to Dr. Janice Glime, Dept. of Biological Sciences, Michigan Technological University, Houghton, Michigan 49931, U.S.A.