

## IOP NEWSLETTER 42

SEPTEMBER 1990

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PLEASE MAIL NEWS AND CORRESPONDENCE TO  
YOUR REGIONAL REPRESENTATIVE OR TO THE  
SECRETARY FOR THE NEXT NEWSLETTER 42.

The views expressed in the newsletter are those of its corre-  
spondents and do not necessarily reflect the policy of IOP.

## IOP NEWS

### IOP GENERAL ASSEMBLY, FRANKFURT, MAY 27TH 1990

The meeting was chaired by the IOP President, Professor C.B. Beck, and was attended by 39 registered IOP members. It occupied the final session of the two day Plant Fossil Record (PFR) workshop and was called to debate the implications of that workshop. The agenda adopted was:

1. summary of discussions at the PFR workshop;
2. proposals from the PFR workshop for computer software;
3. proposals from the PFR workshop for Field titles and standards;
4. discussion on a draft Frankfurt Declaration;
5. amendments to the Declaration and vote;
6. future activities within the Names in Current Use and the PFR projects;
7. advice on new sources of finance for the PFR project.

The meeting accepted the emended Frankfurt Declaration unanimously and this version appears later in this newsletter;

8. any other business: The Birbal-Sahni Sahni Foundation, 686 Birbal Sahni Marg, Lucknow, India, has proposed the establishment of a "Birbal-Sahni Sahni Medal" to be awarded by the IOP Executive Committee for excellence in palaeobotanical research. This award will be considered at the next meeting of the Executive Committee.

### IOP EXECUTIVE COMMITTEE, FRANKFURT, MAY 27TH 1990

The meeting took place before the General Assembly and was attended by Beck, Dilcher, Galtier, Zhou, Taylor and Boulter.

1. Regional Representative for Europe:

With the advent of easier communications between European scientists it was agreed that the IOP's earlier three regions, northern, southern and eastern Europe, be amalgamated. Dr Johanna Eder-Kovar has since agreed to serve as IOP Europe representative. Her address is: Geologisch-Palaontologische Abteilung, Naturhistorisches Museum Wien, Burgring 7, Postfach 417, A-1014 Wien, Austria. She is responsible for channelling news from Europe to the newsletter editor.

2. Book review editor:

It was suggested that such an appointment would increase the number of book reviews appearing in the newsletter. Dr Phillip Holmes has since agreed to serve as book reviews editor. His address is: Division of Environmental Sciences, Polytechnic of East London, Romford Road, London E15 4LZ.

3. Alphabetical membership address list:

It was suggested that an IOP member in North America be approached to work from the secretary's

magnetic lists sequenced by region.

4. Second phase of the PFR project:

The secretary was instructed to seek funds for future international developments.

### TOM HARRIS TRAVEL AWARD

The first Tom Harris Travel Award of £150 from the income from this fund contributed to by many palaeobotanists from different parts of the world was given last year to a Reading University Botany student, Simon Malcomber. He used it to assist him in travelling to the Seychelles in September 1989 to study the endemic species of *Nepenthes* in that island group. His 73 page report on that study has been submitted to the University in which he gratefully acknowledges the support received from that award.

### APOLOGIES FOR ABSENCE

In the dim and distant past an article appeared in the newsletter concerning the availability of a demonstration disc for the Plant Fossil Record database. Many of our members duly sent in cash and computer discs requesting a copy. We would like to apologise to these individuals for the late return of the demo. We have been experiencing difficulties with the reproduction of graphics. These difficulties have almost been resolved and the long wait is nearly over. The late 1990 deadline for the full database ('PFR1') will not be affected by this delay as it will not contain graphics. We hope that it will be available on schedule.

### REPORT ON BRITISH PALAEOBOTANY AND PALYNOLOGY

This is now available from Dr Barry A. Thomas, Botany Department, National Museum of Wales, Cathays Park, Cardiff, CF1 3NP. Its price is either £2.50 (incl. p. & p.) for cheques payable against a British bank or for Eurocheques made payable to "The National Museum of Wales" or U.S. \$4.00 (incl. p. & p.) made payable to Dr. B.A. Thomas.

### THE PLANT FOSSIL RECORD PROJECT

#### 1. FIRST PHASE FEASIBILITY STUDY LEADING TO PFR1

This is now more or less complete and has achieved its two major aims, agreement on the international stan-

dards for the database and the production of a complete database facility for all fossil plant genera.

The General Assembly of the International Organisation of Palaeobotany in Frankfurt unanimously approved the Frankfurt Declaration at the end of the PFR workshop May 26-27th. This sets standards for software and the content of each Record.

The first version of the database, PFR1, will include: ING genera, others from the catalogues of Andrews, Watts and Blazer as well as those from that of Meyen (to be published by IOP in 1990).

PFR1 is planned for distribution in late 1990 with both Smartware II and Textmaster as the database system. It is expected to cost individuals about £100 (institutions will pay more) and can be obtained from the IOP office, London E15 4LZ at the end of 1990.

Negotiations are beginning with the suppliers of Smartware II and Textmaster for run-time copies (these allow the user to run the existing database without being able to alter it). These two programmes have different characteristics. The latter is more efficient at information retrieval with up to 10,000 records whilst the former is superior for larger databases. So for PFR1 Textmaster is the most suitable program whilst future versions will need Smartware II.

## 2. SECOND PHASE: OPERATIONAL WORK LEADING TO PFR2

This will complete the addition of all genera described by the end of 1990, will include all genera described after 1990 and will incorporate all NCU assessments.

It will also include more data of type species in the complete generic list by text scanning from a priority list of publications eg Jansonius & Hills 1976, Lentin & Williams 1989 etc..

If resources permit the project will add descriptive and other data to the records received from IOP members. Already more than 30 specialists have volunteered to be responsible for certain sets of records and are returning the data to the IOP office. These sets are listed in the NCU section below.

It is clear that many other magnetic databases of plant fossils are available and we hope to negotiate permission to merge PFR-formatted records from them, both for type species of genera included and for other species.

It is also hoped to begin the incorporation of records of sub-generic taxa in a systematic way yet to be determined (eg. by negotiation with sponsors).

## THE FRANKFURT DECLARATION CONCERNING THE PLANT FOSSIL RECORD

This Declaration was voted for unanimously by the International Organisation of Palaeobotany's General

Assembly in Frankfurt on May 27th 1990. It thereby has the authority of the International Union of Biological Sciences as an international recommendation.

### Preamble

Plant fossils provide a record of the plant kingdom, of global changes expressed in climate and environment, and this record is in addition a tool needed for stratigraphic work in the geologic community and our energy industry. Therefore, fast and efficient access to the plant fossil data is essential in improving our understanding of many problems facing mankind. The proposals made below are an effort by the international community of palaeobotanists organised in the International Organisation of Palaeobotany to solve the organisational and technical problems and to implement the necessary programs.

**Introduction** The "Committee for Fossil Plants" of I.A.P.T. is responsible for processing any changes in our procedures for naming fossil plants. The "Names in Current Use" exercise, to draw up a list of names which excludes those no longer in use, is one of that committee's responsibilities. The committee's work is transmitted through Taxon, and is reported separately in the IOP Newsletter. Ultimately, it reports to the General Committee of I.A.P.T.

This Declaration concerns the taxonomic use of the nomenclatural code with respect to fossil plants. It is to set an international standard for describing plant fossil taxa at all ranks prescribed by the Code. It is a database, initiated, created and to be managed by the International Organisation of Palaeobotany. The database is to serve as an authoritative international record of fossil plant taxa and is to include as much available data as is practicable in magnetic form.

### Software and hardware

The description of each plant fossil genus and species should aim to conform with the agreed format of 43 fields for each Record, these being revised at the 3rd International Senckenburg Conference from the original 34 defined by Holmes and Hemsley (1990a). Graphics may be included as part of the Record.

The data will be stored on mainframe and mini-computers as well as on personal computer discs. Facilities for distributing results of searches of selected data will be available as printed, optical or magnetic versions. A variety of database management packages are being tested. At least one operational system will be available commercially.

### Taxonomy

The PFR database is established at Frankfurt in May 1990. It will progress in three phases:

The 1990 version (PFR1) consists of all fossil genera from ING, Andrews et al catalogues and Meyen (1990). Taxonomic, stratigraphic and geographic information is included.

The December 1991 version (PFR2) will include information of those generic names deemed to be in

current use. The decisions of the separate nomenclatural project, *Names in Current Use*, will be incorporated within the PFR database. As resources permit published descriptions of the type species of the PFR genera will be included and data from other catalogues and databases will be added.

As resources permit, records of fossil species of modern genera and of other taxa from the fossil record, will be included in the database.

To facilitate efficient searching of the database a standard range of terms will be applied to describe commonly accepted features of geographical, botanical and stratigraphical terms. The spellings used by Holmes and Hemsley (1990a), and others to be published in future IOP Circulars, will be definitive.

#### Other databases

As resources permit, data from other databases will be merged into the PFR database. This will encourage all palaeobotanists to use the 43 Field titles of the PFR database. Details of newly published names will be included as Records in the PFR database as soon after valid publication as possible. This Declaration urges authors to be responsible for providing data in the format described here.

#### Nature of the product

The PFR archive is to be located at the institution where the database is managed. That is also the repository for new data and the source for search requests, magnetic or printed. A back-up archive will be stored at a second institution for security.

Search requests will provide sets of Records or Fields at a cost. From time to time the dated versions of the complete database will be available for purchase. These will be on personal computer discs and will be driven by specially customised software, eg. Smartware II.

Reference: Holmes, P.L. and Hemsley, A.R. (1990b) The revised format and content of plant fossil records. IOP Circular 8a. Available from your IOP regional representative.

## THE NAMES IN CURRENT USE PROJECT

A meeting of IAPT 'subcommittee A' was held at the CAB International Mycological Institute, Kew, 6th June 1990. Representing the fossil plants were Prof. W. G. Chaloner, Alan Hemsley and Phillip Holmes. Amongst the items discussed were reviews of progress from all of the plant groups involved in NCU; circulation of draft NCU lists; criteria for inclusion in NCU lists (see below) and the future of NCU. The bryophyte group had completed their draft list; the fungal group reported that they would be ready by the end of August and the vascular plant group by end October. The aim is to produce a complete draft list of names in early 1991; we therefore

need to assess the names of fossils by the end of September so that the data can be returned to the ING office for integration.

It is the opinion of those co-ordinating the fossil plant revision that any names that have not been assessed should be retained regardless. Obviously the process would benefit from having as many names checked as possible. The list below shows all those who have registered a willingness to help in this respect; if you can help us in any way (on individual taxa or complete groups) please contact the IOP office.

The following are extracts from the minutes of the meeting of IAPT 'subcommittee A' held at the CAB International Mycological Institute, Kew, 6th June 1990. They are intended as guidelines for "all those contributing to the project and checking draft lists."

Annex F of the minutes:-

"Criteria for inclusion in 'Names in Current Use'

Names in current use are legitimate names adopted in the most recent revision of the corresponding group (if any), or in a recent flora within whose limits a given taxon occurs, or, failing this, they are names that one would adopt, or that other botanists would likely adopt, when referring to a given taxon.

The definition of NCU's has to be flexible, and the criteria for inclusion in the lists must be pragmatic. The list must certainly allow for those alternative taxonomies in accordance with the current Code if these are currently employed, i.e. the views of "splitters" will be allowed for. The question may also be asked the other way round: which names are not to go on an NCU list? The following "negative" categories can be identified:

a. Names that are either completely forgotten, or that are unused because universally considered as taxonomic synonyms;

b. Names that are illegitimate either as junior homonyms or as being nomenclaturally superfluous, unless they are so well established that conservation is desirable (and in that case a conservation proposal should be made, since the lists at least for the time being have no privileged status);

c. Names that cannot be typified or whose type cannot be interpreted (unless, again, their present widespread use warrants their re-typification by conservation);

d. Names that have been used in a wrong sense and have become meaningless or misleading (and that qualify for rejection under Art. 69, unless conservation offers a better solution)."

It should be noted that these criteria were established at a meeting of sub-committee 'A' and are not necessarily the views of those dealing specifically with fossil plants. In addition to the above criteria the committee also noted that "names included in the list should be legitimate and not *nomina nuda*".

#### NCU ASSESSMENT

List of sets of the PFR records being extended by named specialists for the PFR project and/or being as-



NAME : SUBJECT

Alvin, K. : Mesozoic conifers  
 Batten, D. : Mesozoic spores  
 Beck, C. : Progymnospermopsida  
 Belz, G. : *Corymopteris*, *Heteropteris*, *Alloiopteris*, *Saccopteris*, Tertiary leaves  
 Boyd, A. : Cretaceous of Greenland  
 Cleal, C. : Palaeozoic Sphenopsida  
 Collinson, M.E. : Tertiary fruits and seeds, Tertiary Salviniaceae and Marsileaceae  
 Crawley, M. : Woods  
 Dilcher, D. : Cretaceous and Eocene leaves and flowers  
 Dodruskina, I. : Triassic of Europe and Asia  
 Eder-Kovar, J. : Ettinghausen, Unger and Stur  
 Edwards, D. : Silurian and Devonian (exc. spores)  
 Friederich : *Musophyllum*, *Amomophyllum*, *Zingiberoideophyllum*  
 Friis, E.M. : Sternberg, Florin, Nathorst and Sweden  
 Galtier, J. : Charophyceae, Coenopterids of the Carboniferous and Permian  
 Gensel, P. : Devonian  
 Grambast, N. & Feist, : Palaeozoic Charophyceae  
 Gomankov, A. : USSR  
 Harley, M. : Aracaceae  
 Harding, I. : Dinocyst  
 Herbst, R. : Palaeozoic and Mesozoic fern leaves and stems  
 Hughes, N.F. : Mesozoic pollen  
 Kvacek, Z. : Czechoslovakia and Sternberg and Brongniart  
 Meyer-Bertrand, B. : Carboniferous pteridosperms and Calamopityales and Lyginopteridales  
 Pfefferkorn, H.W. : *Polytheca*, *Cannophyllites*, *Alloiopteris*, *Odontopteris*, *Lescuropteris*.  
 Philippe, M. : Jurassic wood  
 Reymanovna, : Mesozoic cycads  
 Rosler, O. : South America  
 Rothwell, G. : Palaeozoic Pinopsida (exc. Cordaitales, lycopods, glossopterids and Ginkgoales)  
 Rowe, N. : Carboniferous Lycopsidea  
 Riding, R. : Calcarious algae  
 Schopf, W. : Precambrian  
 Stockey, R. : Araucariales  
 Stuchlik, L. : Poland  
 Taylor, T. : Antarctica  
 Thomas, B.A. : Carboniferous lycopods  
 Traverse, A. : Tertiary Pollen and Spores, Permian, Silurian, Ordovician or Cambrian Spores  
 Walther, H. : Saxony  
 Wheeler, E. : Dicotyledonous wood  
 Zhou, Z. et al. : Chinese Tracheophytes  
 Zodrow, E.L. : Pecopterides

## REPORTS OF RECENT MEETINGS

### MEETING OF SWISS PALYNOLOGISTS AND PALEOBOTANISTS, ZURICH, SWITZERLAND, FEBRUARY, 1990

Although the population of Switzerland is only about that of greater Chicago, it sure packs a mean punch when it comes to the large number of active palynologists found in this small alpine country. Twenty palynologists, employed in academia and industry (geological consulting firms, hospitals), were on hand for the first meeting ever of Swiss palynologists and paleobotanists. Organized by Barbara Mohr, the informal, day-long meeting held at the Swiss Federal Institute of Technology in Zurich centred around short verbal presentations of on-going research. Represented were topics as diverse as aeropalynology, Quaternary palynology and climatology, archaeological dendrology, charophyte zonation, paleopalynology, and dinoflagellate systematics.

There was also some talk about creating a more formal organization of Swiss paleobotanists and palynologists, but the members opted to meet again informally before heading down that road. The next meeting will be held in Geneva in September to coincide with the Swiss Natural Sciences Association meeting. All those interested in more information about the next meeting or about the group should contact Dr Barbara Mohr, Geological Institute, ETH-Zurich, Sonneggstrasse 12, CH-8092 Zurich, Switzerland (tel.01/256-3714).

C.T.GEE, Zurich, Switzerland (formerly), Bonn, Germany (currently)

### COLLOQUE DE PALEOBOTANIQUE, LIÈGE, 25-26 MAY 1990

This meeting of the Organization Francaise de Paléobotanique was held at Liège just before the International Senckenberg Symposium and was organized by Muriel Fairon-Demaret and the Laboratoire de Paléobotanique et Paléopalynologie, University of Liège. After the welcome by Professor Maurice Streel, the morning session was opened by a key lecture of Dr J. Bouckaert on the geology of Belgium which was a bright summary of the very detailed recent studies on biostratigraphy and palaeogeography from the Palaeozoic to Tertiary.

12 papers were presented: by Gerrienne (on *Pachytheca*), Streel (Siluro-Devonian floras from Libya), Lemoigne (the concept of seed and ovule), Galtier (a new Lower Carboniferous Gymnosperm), Matten (a new Tournaisian pollen organ), Meyer-Berthaud (A Triassic Gymnosperm from Antarctica), Thevenard (plant biostratigraphy of Lias), Phillipe (Bathonian

woods and palaeoecology), Barale (cuticle of Mesozoic plants in interpreting palaeoclimatology), Russo-Ermolli (chronology and palaeoenvironments of Tertiary deposits), Fairon-Demaret (the Tertiary flora from Bioul) and Goemaere (sedimentology and palaeogeography of the Famennian in the Psammites du Condroz). In addition, all the participants particularly enjoyed an exhibition of some of the most famous Devonian plants from Belgium which was accessible throughout the day.

The field trip on May 26th, under the direction of M. Fairon - Demaret and E. Goemaere concerned first the Famennian of the Vallée du Bocq where we collected compressions of *Moresnetia*, *Rhacophyton* and *Archaeopteris*. After an excellent picnic with exceptionally tasty Belgian beer, the afternoon was devoted to the visit of the quarry of Bioul, a karstic deposit which yielded both a microflora and a particularly well preserved macroflora with leaves, seeds, fruits and lignitic woods, all currently under investigation by the team of palaeobotanists in Liège. This short meeting was very successful and enjoyable. All members of the laboratory in Liège, and especially Muriel Fairon-Demaret, have to be congratulated for their hospitality and excellent organization.

J. GALTIER, Montpellier, France

## NEWS OF FORTHCOMING MEETINGS

### VII REUNIAO DE PALEOBOTANICOS E PALINOLOGOS, SAO PAULO, BRAZIL, DECEMBER 1990

This event was publicised in IOP Newsletter 41 and is sponsored by IOP to help with the organisation.

### XII INTERNATIONAL CONGRESS ON CARBONIFEROUS & PERMIAN STRATIGRAPHY, BUENOS AIRES, ARGENTINA, SEPTEMBER 22-27 1991

For palaeobotanists there are symposia devoted to Permian Palaeobotany (T.N. Taylor), Late Palaeozoic Palynology (Playford, Owens and Azcuy), preservation of plant fossils (A.C. Scott and J. Galtier), Late Palaeozoic Phytopalaeoecology (R. Gastaldo and R. Cuneo) and Late Palaeozoic fuels (M. Wolf and H. Villar).

There is an excursion to the Paganzo Basin in La Rioja province Patagonia, Sierra de la Ventana and one to southern Brazil.

Send an abstract and US\$200 before March 1991 to: Division Paleobotanica, Museo Argentino de Ciencias Naturales, Av A Gallardo 470, 1415 Buenos Aires, Argentina.

### PALAEOFLORESTIC AND PALAEOCLIMATIC CHANGES IN THE CRETACEOUS AND TERTIARY, BRATISLAVA, CZECHOSLOVAKIA, SEPTEMBER 1-7, 1992

This is being organized by Dr Eva Planderová, Institute of Geology D, Stur, Mlynská dolina 1, 817 04 Bratislava, Czechoslovakia.

The international symposium on ecostratigraphy, paleofloral and paleoclimatic changes in the Cretaceous and the Tertiary is linked up with the symposium held in Prague in 1989 within the IGCP project "Bio-events".

The symposium will be held in Bratislava. Two-days' excursion to Cretaceous and mainly Tertiary localities in Moravia and Slovakia will be organized.

Presentations at the symposium will be:

1. Results of correlations of macro- and micro-flora of

a) Paratethys, Poland, Slovakia, Hungary, Austria, Switzerland

b) Central and Western Europe, epicontinental evolution in Bohemia, Poland and Germany

c) southeastern and southwestern areas of Tethys.

2. Taxonomic problems, unification of taxonomy, comparison of concrete fossils; possibility of microscopic confrontation.

3. Correlation of fossil and recent flora, nannoflora and sporomorphs.

4. Evolution of angiosperms since Cretaceous until Neogene.

The number of participants is limited to 85 persons. The deposit sum is 100 US dollars. Participants from countries with inconvertible currency should deposit about 1800 Kcs. Detailed information about accommodation, prices etc., will be delivered to those who responded to the First Circular. Please, will you return the application form before the end of September, 1990.

Please send all correspondence to:

Dr. Eva Planderová, Geologický ústav D. Stura, Mlynská dolina 1, 817 04 Bratislava, Czechoslovakia.

### PAN-EUROPEAN PALAEOBOTANICAL CONFERENCE: PALEOVEGETATIONAL DEVELOPMENT OF EUROPE, VIENNA, SEPTEMBER 19-23RD 1991

Preparations for arranging the "Pan-European Paleobotanical Conference 1991" (PEPC 1991) in Vienna are progressing well. The meeting is planned from September 19th - 23rd 1991 at the Natural History Museum Vienna, with two or three days of lectures and a two day field-trip to Permian, Triassic and Tertiary localities. A special topic for the sessions will be European vegetation development during Tertiary. There will also be a workshop on the correlation project of plant taxa which has been started in Prague within the IGCP-project 216. Accommodation will be in a student hostel or a hotel. Write to Dr J. Eder-Kovar, Naturhistorisches Museum Wien, Geologisch-Paläontologische Abteilung, Burgring 7,

**8TH INTERNATIONAL PALYNOLOGICAL  
CONGRESS, AIX EN PROVENCE, FRANCE  
SEPTEMBER 6-12TH, 1992.**

The following preliminary details are available from:  
Jean Pierre SUC, Secretary - 8th International Palynological Congress, Laboratoire de Palynologie (case 061), Université de Montpellier II, F-34095 Montpellier Cedex 5, France

Scientific program. The main fields of palynology comprise the framework of the Congress sessions: Physiology, Reproductive Biology, Biochemistry, Ontogeny, Morphology, Systematics, Evolution, Ecology, Climatology, Paleoenvironments, Oceanology, Organic matter, Biostratigraphy, Aerobiology, Melittopalynology, Allergology, Data management, Models.

Specific Symposia will be allowed and encouraged. There will be lectures and posters with an abstracts volume.

**Pre-Congress Excursions:**

A - Paleozoic in Western Brittany; Leader: Fl. Paris

B - Mesozoic in southern Alps; Leader: R. Jan du Chene

C - Paleogene in the Paris Basin and Belgium (regional stratotypes); Leader: M. Schuler

D - Vegetation, lakes and volcanoes in the French Massif Central since the Mid-Pleistocene; Leader: M. Reille

**Post-Congress Excursions:**

E - Permian in the French Massif Central; Leader: J.J. Chateaufneuf

F - Jurassic in South-West Germany

G - Neogene and Lower Quaternary in southern France and northeastern Spain

H - Modern vegetation and prehistoric sites in French and Italian Riviera; Leader: J. Renault-Miskovsky

I - Long pollen sequences and the last glaciations from southern Alps to Vosges mountains.

J - History of the vegetation in the Pyrenees mountains; Leader: G. Jalut

K - Modern vegetation of Provence and southern Alps, Late Glacial-Holocene history; Leader: A. Pons

**5TH INTERNATIONAL CONFERENCE ON  
MODERN & FOSSIL DINOFLAGELLATES  
ZEIST, NETHERLANDS, APRIL 19-25TH 1993**

Dino5 will focus on all aspects of modern and fossil dinoflagellates. It will be held on the premises of the Royal Dutch Soccer Association, near Utrecht, and is being organised under the auspices of the Laboratory of Palaeobotany and Palynology of the University of Utrecht. It will be a joint meeting with the third symposium of Neogene and Quaternary dinoflagellates.

Write to: Jan Willem Weegink, Laboratory of Palaeobotany and Palynology, University of Utrecht, Heidelberglaan 2, 3584 CS Utrecht, The Netherlands. Telephone 31 30 532799; fax 31 30 531357

**PALAEOBOTANY AT THE  
NATURAL HISTORY MUSEUM**

This is the new name for what has hitherto been called the British Museum (Natural History). Earlier this year it was proposed to close down all palaeobotanical research. More than 40 IOP members have written to politicians and administrators in Britain to comment on the proposal and the recent IOP General Assembly and Executive Committee meetings in Frankfurt composed other letters.

**Research work in the palaeobotany section**

This document gives information about the research work of the Palaeobotany Section, which has been declared a unit of redundancy in the recently announced Corporate Plan. (For further information and photographs, please contact Dr Chris R Hill, 071 938 9423). Basic science projects under way included the discovery and description of the World's earliest cycad from the uniquely rich Jurassic age (150 m. years old) localities of North Yorkshire, as well as of missing links between the two main families of cycads still living in the Tropics today. Work was also being undertaken on fossil ferns, seed-ferns and conifers, and on one of the major unsolved problems in Palaeobiology: the identity and origin of Flowering Plants. This included amongst many other aspects a reappraisal of Marie Stopes' fossil woods regarded for many years as evidence for the earliest Flowering Plants. The expertise involved on Jurassic plants, especially as related to the Yorkshire Jurassic (which sets a World standard for fossil plants of that age) was unique and irreplaceable. The closure will bring to an end 150 years of continuous scientific study by a succession of eminent researchers, including the former Vice Chancellor of Cambridge University, Professor Sir Albert Charles Seward.

In recent years we were bringing this kind of long-term systematic work to bear fruitfully on practical problems of relative dating of terrestrial rocks, so essential today for effective oil and mineral exploitation. Research was also being focussed on ancient climates and climatic change relevant to one of today's most pressing environmental problems for mankind: the greenhouse effect. Glaciations followed by global warmings (like the greenhouse effect) have occurred several times in the geological past, and each has had profound and in extreme cases devastating effects on the distribution and character of the World's vegetation. Our research was achieving new global perspectives particularly on the Permian and Cretaceous age warmings, and initial steps had been accomplished to develop work on the Jurassic through Cretaceous warming into a large scale European Community programme co-ordinated from London - at any rate that was our goal for 1992.

As part of this expansion, one postdoctoral fellow



and four research students (partly in collaboration with Oxford University) were to have begun their studies at the Museum in 1990/91. Rather than being a stale and musty area of research, Palaeobotany here was actively growing and we were developing links with other sciences to meet environmental and applied as well as basic challenges and needs.

An example of this is one of our current projects, initiated in 1985, on the fine structure and chemistry of the plant cuticle (the outermost "skin" of plants which prevents them from drying out and forms a major interface with the environment). The cuticle is the plants main defence against entry of chemicals and pests, and as Dutch scientists have recently shown, fossil cuticles were almost certainly a major precursor of high wax petroleum. Our work (partly in collaboration with the Royal Botanic Gardens, Kew and Indiana University) had used innovative electron microscope and cryofracturing techniques to reveal clearly the internal fine structure of plant cuticles for the first time. Combined with biochemical experiments on cuticles of modern plants we were already able to predict that the raw material (amorphous kerogen) needed for formation of high wax oils from cuticle should be composed largely of granular rather than of lamellar matter as previously thought. We were also beginning to clarify which structural components of plant cuticle are composed of which class of biopolymers, and to explore the biodegradability of these polymers through historical and geological time.

The results, of far reaching significance for geology, plant biology, agriculture, and polymer science, were, ironically, also ideal for generating funding required by the Museum.

Closure of Palaeobotany at the Natural History Museum - the only institutional position in palaeobotany left in the United Kingdom (there is none in the Geological Survey, the Antarctic Survey, nor at Kew) - has not been done on any rational basis. We hope you will give your most emphatic support to the continuation of such work at our national museum. The scientific world is horrified at this cut in what is widely regarded as a high priority area rather than one openly regarded by the Director as "peripheral" and as having "no growth potential". Judging by the large number of enquiries received, we do not believe, either, that the British Public will tolerate a situation in which a handful of dedicated professionals no longer exists, simply to be curious and to serve the curious, to study the evolution and diversity of plant life through geological time. Indeed no longer will work be possible on the ancient rainforests that 150 million years ago covered the British Isles with a bewildering diversity of ferns and cycads, and which contained the ancient ancestors of the tropical rainforests of today.

C.R. HILL, London, UK.

## **PALAEBOTANY IN THE WESTMINSTER PARLIAMENT**

The following account is taken from Hansard 175, No. 135, 1076 (this is the UK's House of Commons

official report on Parliamentary Debates). "Mr Dalyell" is a Labour Party (opposition) member of parliament who has taken a special interest in the closure of palaeobotany research. "Madam Deputy Speaker" was chairing for the debate.

**Mr Dalyell:** I come now to the natural history museum. I am not saying just that palaeontology is important for its own sake, which it is. The lessons of the past tell a chilling tale about the warming of the future. I do not think that anyone outside the natural history museum - in Government or in the universities - is producing the long-term data that we need in some areas. Global climate change has occurred before, but not at the rate which the earth's climate seems to be shifting today. It is crucial to be able to look at the past to understand the present trends in climate change. Only from that knowledge can successful strategies for dealing with future changes come. Scholars at the natural history museum are not engaged in some hypothetical calculation of what might happen; they are observing what actually happened. Incidentally, I am speaking from nobody's brief. I am expressing my view, distilled from visits and from conversations with other scientists.

An uphill battle is being fought in Kensington and the Smithsonian but the appreciation of what earth system history can offer is better than it was a year ago. Earth system history is the study of the geological and historical record. Fossils can be used to test predictions of global climate models. They can be used to assess changes in diversity and ecological structure. Museum scientists are piecing together clues about ancient ecosystems. For example, uniquely in the world as far as I know, Kensington and the Smithsonian are pioneering palaeoecology and are pulling together data from all over the world as part of the evolution of the terrestrial ecosystems programme. The data lets us see the patterns in changing ecosystems and is the basis for assessing how the current global change will affect life on earth. That is topical and important now.

I want to ask certain precise questions. If palaeobotany was cut, as proposed in the corporate plan, what would happen to research on the unique Jurassic rain forest flora of Yorkshire? That question has climate and rain forest connections. I hope that that will be one of the questions that the Minister will put to Sir Walter Bodmer when he sees him.

The Minister might also ask Sir Walter, if palaeobotany is cut as proposed in the corporate plan, what will happen to research and collaboration with Spanish colleagues on climatic changes in the Permian period based on world wide distribution of plants. The Permian period was about 220 million years ago and followed a period of extensive glaciation. This present period today follows extensive glaciation and research on the Permian period is highly relevant to what might happen in the future.

The Minister has drawn attention to an increase in Government funding for the natural history museum of 12.8 per cent. in real terms over the past 10 years. For the running costs as opposed to building costs, which is the



only component at all relevant to the museum's scientific work, the figure for 1979-80 in present day terms was £14,062 million and for 1989-90 was £14,069 million. How can it therefore be claimed that Government expenditure on science has risen at all significantly?

If the Minister meets Sir Walter Bodmer, I hope that he will meet representatives of the Institution of Professionals, Managers and Specialists. That is important.

I received a letter from Professor Boulter of the International Organisation of Palaeobotany. He wrote: "At our recent meeting in Frankfurt am Main it was noted that: 1. fossil plants are the source of oil, bituminous coal and brown coal 2. there is growing international concern about the effects of these fossils on the world environment 3. eastern Europe relies heavily on brown coal for energy this has caused very bad pollution after 40 years of irresponsibility. Our view is that the study of fossil plants is a central part of the scientific investigations needed on the effect of fossil fuels on the international environment." Professor Boulter was writing on behalf of his executive committee.

I have a letter from the Soviet Union which states: "Soviet Palaeobotanists constantly apply to the Palaeobotany Section of the Natural History Museum for help. Only in 1989-90 two of us were specially sent on a mission to the Section for the study of stored collections." That was a long letter about the museum's value in Russia.

I have another letter to Sir Walter Bodmer from Frankfurt which states: "This international meeting of some 120 palaeobotanists from 25 countries wishes to urge upon you and your fellow trustees our deep concern."

**Madam Deputy Speaker:** Order

**Mr Dalyell:** I have made my point.

## PALAEOBOTANY IN ROMANIA

After a long period of instability and overthrow of the Dictatorship, we can inform you about our scientific "life" which is waking from darkness.

We present some new contributions in the fields of Paleopalaeontology, Palynology and Paleobotany as follows:

### Paleopalaeontology

1. Algues calcaires dans les depots oligocenes inferieurs de la region Purcari - Mesteacan - Valea Chioarului (NW du Bassin de Transylvanie) by I.I. Bucur, P.P. Onac & V. Todarale, Special Volume "The Oligocene from the Transylvanian Basin" (1989), Cluj - Napoca.

The following algae are described: *Corallina* sp., *Jania* cf. *dercourtii*, *Archaeolithothamnium* cf. *dallonii*, *Lithothamnium pentagonum*, *L. orbiculatum*, *L. andrusovi*, *Lithoporella melobesisoides* and *Pseudolithothamnium album*. The Oligocene microflora was dominated by Lithothamniids.

2. Calcareous algae (new and revised), microproblematicae and foraminifera of Jurassic - Lower Cretaceous deposits from the Carpathian area, by O. Dragastan,

Revista Espanola de Micropaleontologia, Vol. XXI, No.1, 1989, Madrid.

Calcareous algae of Seletonellaceae, Dasycladaceae and Gymnocodiaceae families are described from the Carpathian Carbonate Platforms and the southern foreland the Moesian Platform.

The following new algae of Seletonellaceae, Dasycladaceae and Gymnocodiaceae families are described from the Carpathian Carbonate Platforms and the southern foreland the Moesian Platform.

*Urdiporella jurassica* n.gen. et sp., *Salpingoporella bucuri* n.sp., *Suppiluliumaella leini* n.sp., *S.riedeli* n.sp., *Trinocladus orientalis* n.sp., *Psueodohelioporella musakimu* n.gen. et sp., *Dissocladella bakalovae* n.sp., *D.urgoniana* n.sp..

### Palynology

1. A few data on the Miocene microflora in Borehole 18 - Tebea (The Brad - Sacarimb Basin), by J. Petrescu & M. Fazecas, Studia Univ. Babes Bolyai, Geologia-Geographia, XXXIV, 2, 1989, Cluj-Napoca.

Three microfloristic communities (MC) are described which cover the Lower Miocene (Eggenburgian-Ottnangian) and Middle Miocene

- **MC-A** contains Ferns 7-15%, Taxodiaceae + Cupressaceae 7%, Pinaceae 21%, Monocotyledon 5%, Dicotyledon 62%

- **MC-B** contains Ferns 5%, Taxodiaceae + Cupressaceae 3%, Pinaceae 26%, Monocotyledon 3%, Dicotyledon 63% and

- **MC-C** contains Ferns 16%, Taxodiaceae + Cupressaceae 4%, Pinaceae 30%, Monocotyledon less 1%, Dicotyledon 41%.

### Paleobotany

1. Fossil flora of higher Miocene in Chiuzbaia (Maramures county). p.235, 43 plates, Editura Academiei Romane, 1990. Bucharest.

The monographical and complete study carried on by Prof. Razvan Givulescu on the basis of 9139 samples; are described 235 taxa and 107 genera.

The participation in % of some phytogeographical elements is: Eastasian elements 31.09%, Northamerican elements 31.09%, Mediterranean elements 5.58%, Balkan - colchisian elements 5.85% and Central - Southern European elements 12.60%.

The forest was "of mixed mesophytic type" with *Fagus*, *Quercus*, *Acer*, *Carpinus*, *Carya*, some Conifers and a few laurophylls elements. The flora can be compared with "europaische Sommerlaubwalder" Mai 1981, with "a Mesophytic Forest and Deciduous leaves (Sequoia) Eichen-Buchen Juglandaceen Wald", Franzel, 1969 or with recent "mixed mesophytic Forest of Appalachian (Braun, 1964), Beech - Maple Forests (Kuchler, 1967) and with Broad leaves Deciduous Forest and Conifers from Japan.

The work of "Flora of Chiuzbaia" is one of the most important study of paleobotany which was printed after the Romanian revolution.

The quality of the plates is noteworthy and should

be appreciated by specialists of Tertiary floras as significant bases for comparison.

Send your order to: Editura Academiei Romane, R-79717, Calea Victoriei 125, Bucharest, Romania, Price = 26 LEI.

P.S. I send you this letter after a strong earthquake produced today May 30, 1989 with a magnitude of 6.8 on the Richter scale! We fight for democracy, but nature isn't with us.

O. DRAGASTAN, Bucharest, Romania

## COMMENTS FROM SPAIN

Dr R. Wagner, Cordoba, writes:

"I have to thank you for kindly referring to our Palaeobotanical Guide (Guia de Paleobotanica) in IOP Newsletter 41. Unfortunately, a language barrier has been operating and the item as reported has become irrelevant information. The guide was published for a palaeobotanical exhibition that the Botanical Garden of Cordoba organised as a preview of what is to become a permanent exhibition in a still to be restored medieval building earmarked, primarily, for a Palaeobotanical Museum within the Botanical Garden. The Guide is a general introduction to aspects of Palaeobotany that may help to explain the subject to the general public. About 6,000 visitors came to see the exhibition and a reasonable number of copies of the Guide were sold. Cordoba has only 300,000 inhabitants and it was clear that a number of people came in from various other places in Andalusia, such as Malaga, Granada, Sevilla, Jaene etc. In other words, the effort proved well worth while. Now that you know this, you may wish to have another look at the Guide and to provide the correct information in the next Newsletter.

The item by Chaloner and Hemsley in Newsletter 41 reads as criticism of the IOP President, which is unfortunate because Beck has written exactly as he was required to do at the general meeting held at the 3rd IOP Conference at Melbourne. I do not recall seeing either Chaloner or Hemsley at this Conference. Their article also suffers from mistiming now that the Palaeobotany Section of the Natural History Museum in London is apparently going to be removed from the scene. This is not just another University post that may or may not go to a palaeobotanist, and I hope that the palaeobotanical community worldwide (i.e. IOP) will lodge a most vigorous protest in defense of not merely the persons involved, but the institution. This is not time for complacency."

## COMMENTS FROM BELGIUM

The O.F.P. (Organisation Francaise de Paléobotanique) has just met in the University of Liège, Belgium, these last two days. The meeting and excursions were successful although attended only by 15 palaeobotanists, most on their way to the Kreusel Memorial Symposium

in Frankfurt.

The advertisement (sent by who?) of the Liège meeting published in the IOP Newsletter 41 has particularly attracted my attention. I understand that the new newsletter style does not allow to use a French layout (with accents!) but in this case, I suggest that no French at all should be incorporated in the Newsletter if it has to be made this way. But the worst is that the letter reproduced was completely out of date as any reader understanding a minimum of French would have realized. Is it really interesting for a IOP Newsletter reader to learn in April 1990 that he should have sent the abstract before the 1st of January 1990 or that he would receive detailed instructions on the meeting by November 1989?

Of course, I know that making the Newsletter is a service made freely by the officers who have to be congratulated and thanked rather than criticised but, on another hand, if one does not react when the things are going wrong, it means one does not care about the interest of such a Newsletter.

M. STREEL, Liège, Belgium

## COMMENTS FROM ADELAIDE

There have been a number of changes of people and research directions within the Adelaide University Botany Department Palaeobotany Group. At present the group consists of Dave Christophel (of course), Andrew Rowett, Kirk Johnson and Leonie Scriven. Over 1989-90 Andrew Rozefelds of the Queensland museum successfully completed an Honours degree research project in Adelaide University on Tertiary seeds, principally in the Elaeocarpaceae. In early 1989 David Greenwood went to Fiji to lecture in the Biology Department of the University of the South Pacific after a short period with the South Australian Geological Survey. However Greenwood is presently in Adelaide completing a number of papers on his foliar physiognomy work and the biostratigraphy of the Lake Eyre Basin Eocene silcrete floras. In late September he will move to Canada to start a NSERC Postdoctoral Fellowship working on the Eocene Axel Heiberg floras with Jim Basinger at the University of Saskatchewan. Since completing his Ph.D. on dispersed cuticles of the Queensland Rundle Oilshale, Andrew Rowett has been engaged on a major biostratigraphic examination (using dispersed cuticles) of Australian Eocene lignites. Rowett's project is funded by the NERDDC (National Energy Research, Development and Demonstration Council). In mid 1989 the Adelaide group was joined by Kirk Johnson who had completed a Ph.D. thesis at Yale University on Cretaceous-Tertiary boundary floras with Leo Hickey. Johnson is currently working with Christophel on the taphonomy of modern leaf assemblages in northeastern Queensland. This is a continuation of the study started by Greenwood in his Ph.D. work. In 1991 Johnson will move to Colorado to take up a position as Curator of Paleontology at the Denver

Natural History Museum. In February Johnson and Greenwood attended the 10th Australian Geological Conference in Hobart where they sampled some of Bob Hill's famous "big leaf" floras. Fortunately magnifying glasses were supplied. Leonie Scriven has just started her Ph.D. and has embarked on the mammoth task of describing the Eocene Maslin Bay Flora which has lain idle for many years. Christophel has now received ARC (Australian Research Council) funding to examine the southern Australian Miocene macrofloras, representing a departure from his previous emphasis on Eocene floras. Several projects on the systematics of the Eocene floras are however continuing. A major treatment of the modern Casuarinaceae was recently published (Dilcher et al., *Amer. J. Bot.*, 77: 338-55), precursor to a treatment of the Tertiary macrofossils of this important Australian family. Dave's research received welcome publicity recently with a front page lengthy article in the Adelaide University Alumni magazine, *Lumen*. Both Christophel and Greenwood expect to attend the Geological Society of America annual meeting in Dallas, in late October.

DAVE GREENWOOD AND ANDREW ROWETT Adelaide, Australia.

## SUPPORT FOR PALAEOBOTANY - ARE WE DEMANDING TOO LITTLE?

I read with more than academic interest Charles Beck's articles "From the President" and "Support for Palaeobotany" (IOP Newsletter 39: 102, 6-8) and Bill Chaloner & Alan Hemsley's subsequent qualifying note "Are we expecting too much?" (IOP Newsletter 41: 4-5). Few would argue with Beck's plea for a pluralistic approach emphasising evolutionary biology or Chaloner & Hemsley's advocacy of active promotion of palaeobotany in the broader scientific community.

However, I detect a potentially harmful element of wishful thinking in Chaloner & Hemsley's reply to their own rhetorical question: "Are we really so badly off? Look at the names in the IOP address list - when were there ever more palaeobotanists in positions of seniority in universities, in scientific institutions and in industry?" They proceed to list the names of seven British palaeobotanists who successfully made their own way in the world. Analysis of this list is instructive. Bill Lacey, Ken Alvin and Keith Allen all retired without replacement. Alvin and Allen departing recently and prematurely. Bill Chaloner and Bob Spicer owe their "new" positions to transfers from now defunct colleges of London University, Dianne Edwards to an inter-departmental transfer within Cardiff University. Mike Boulter achieves miracles in a polytechnic institute starved of central government funding.

All seven palaeobotanists acquired their first 'permanent' positions before (most well before) ca 1980. The most 'junior' of these appointees, Bob Spicer, was a

member of the well-known cohort of mid-late 1970's doctorates that also included John Holmes, Andrew Scott, Chris Hill, Margaret Collinson and Peter Crane. Peter Crane found greener pastures here in the U.S. Margaret Collinson has acquired an international reputation but not secure employment. Most ironically, publication of Chaloner and Hemsley's broadly optimistic article coincided with the sudden announcement that Chris Hill is to be made redundant from his 'permanent' position at the London Natural History Museum (actually one of the last central government funded British research institutions to be dismembered). Of Hill's two colleagues, Cedric Shute is to be confined to routine curation and Mark Crawley is to be retrained as an invertebrate technician).

Such is the fate of the relatively well established cohort of the 1970's. Where are the palaeobotanists of the 1980's? Or, to paraphrase Chaloner & Hemsley; Look at the names not on the IOP address list - when were there ever more palaeobotanists working as travel agents or bank clerks or bricklayers? Indeed in time past have established palaeobotanists routinely dissuaded promising students from reading the subject on the grounds that it could not possibly lead to a career? New positions are not being created, and Beck is fully justified in advocating vigorous defence of the few extant positions. I submit that the number of practitioners currently in positions of seniority is merely a historical barometer, wholly inappropriate for assessing the present health of the subject. A far better gauge is the success of senior palaeobotanists in ensuring the establishment of their intellectual offspring: palaeobotanists who have the drive, vigour and new ideas to prevent the stagnation that Chaloner & Hemsley expressly fear. Without the generation of the 1980's and (unless the situation improves rapidly) of the 1990's, fossil plant research in Britain is already doomed. Like HIV, the extent of the disaster will not be realised for a generation. Only in the next century will we perceive that palaeobotany has become not Chaloner & Hemsley's "minority interest" but an amateur interest - the wheel will have turned full circle and the "high ground" not only lost but also no longer attainable.

One significant characteristic shared by the articles of Beck and Chaloner & Hemsley is well-expressed, reasoned argument (a well-known hallmark of these authors). This quintessentially scientific approach allows recognition of the need for evangelistic zeal but, in a classic 'Catch 22' situation, hampers its impassioned implementation. In an age when rhetoric is generally valued more highly than logical argument, the ingrained academic instinct to rationalise and compromise may help explain the extraordinary political impotence of the scientific community as a whole. We palaeobotanists in general, and our more influential senior colleagues in particular, could learn some invaluable lessons in passion from the environmental movement; instead of passively worrying that we may be expecting too much, we should at all costs avoid demanding too little.

RICHARD BATEMAN, expatriate Englishman passing through Washington, D.C.



## COMMENTS ON *STRATIOTES*

*Stratiotes kaltennordheimensis* (Zenker 1833) Keilhack (1896) versus

*Stratotes pistaciaeformis* (Von Schlorhtim 1822) Jahnichen nov. comb.

The well-known carpo-fossil *Stratiotes* "*kaltennordheimensis*" must be related to the classic "*Carpolithus pistaciaeformis*" as the oldest epithet established by F. Von Schlorhtim (1822: 421, Pl. 21, Fig. 10 a-b). Schlotheim compared these fossil seeds with those of the recent genus *Pistacia* (Anacardiaceae), s. str. *Pistacia lentiscus* L., collected by Seetzen (1803) in Minori, and dedicated to the former "Oriental Cabinet" of the Ducal Collections at Gotha/Thuringia.

After kind information by Jaakko Nurmi, Ass. Curator at the Botanical Museum of Helsinki, the Seetzen collection was later incorporated within the collection of S.E. Von Bridel-Brideri, also formerly at Gotha and brought to Helsinki in 1829. The taxonomic affinity supposed by Schlotheim was indeed a mis-interpretation. The fossil seeds show the typical shape and structure of true *Stratiotes*. So the classical *Stratiotes* "*kaltennordheimensis*" must be replaced by - *Stratiotes pistaciaeformis* (Von Schlorhtim) Jahnichen nov. comb.

Locus typicus: Kaltennordheim/Rhon/Thuringia - GDR - and adjacent regions

Stratum typicum: Brown coal layers, Miocene

The type material is housed within the Palaeobotanical collections (special Von Schlotheim Collection) of the Museum für Naturkunde-Palaeontological Museum, Invalidenstrasse 43 1040 Berlin.

I am much indebted to Mr Jaakko Nurmi, Ass. Curator Bot. Museum at the University of Helsinki, for his useful information concerning the history of the Seetzen collection.

H. JAHNICHEN, Berlin, Germany

## THE OLDEST RECORD OF *NYPA* *BURTINI*

This is a preliminary report on the oldest stratigraphical record of *Nypa burtini* (BRGT.) ETT. (Nypaceae) from the lower Aptian of Westphalia) FRG.

A. Hosius and Von Der Marck (1880: 203) described and interpreted two single fragments of "*Megalozamia falciformis*" as cycadean frond-bases. Later on (1885: 230) the same authors found a great stone-mould (11cm in length!), with which "the approximated apices" lead to their imagination of a "terminal bud also comparable with cycads".

But the taxonomic affinity established by Hosius and Von Der Marck was indeed a mis-interpretation stimulated by the fact that there was also a single finding of a great probably cycadean-like stem (17cm in length!) with spiral leaf-scar bases in dense arrangement. The latter was named *Clathraria* (?) *galtiana*, Tribe Zamieae (ibidem: 202, Pl. 42, Fig. 18).

In reality concerning the very characteristic mor-

phological shape we are dealing here with a true fruit of the *Nypa burtini* type. The very striking stout ribs and the longitudinally arranged vascular bundles of the mesocarp are to be observed. The apex and the base are lacking.

Besides this typical teredo-borings are scattered over the surface of the mesocarps it is known also from mature fruits, from the Belgian Basin and from the London Clay (cp. Gregor and Hagn 1982: 127, Pl. 1, Fig. 2-4: Collinson 1983: text-fig. 192).

The re-investigated lower Cretaceous *Nypa* fruit from the classical literature over a hundred years ago was either over-looked by H. Tralau (1964) in his complex *Nypa* monograph as also by Gregor and Hagn (1982) dealing with silicified *Nypa* fruits of mid-Danian age from Egypt. Surely it was forgotten because nobody supposed the presence of *Nypa* in the lower Cretaceous.

After my revision *Nypa burtini* from the lower Cretaceous (Aptian) of Westphalia/FRG is the oldest record in the palaeobotanical literature.

Locus typicus: former brick-clay mines at the "Barler Berg", 1km W of Frankenmühle, 5 kms SW of Ahaus/Westphalia (County Bentheim).

Stratum typicum: lower Aptian, glauconitic sphaerosiderites.

The type-material is housed within the Palaeobotanical collections of the Palaeontological Museum of the University of Muenster (FRG.-D--4400 Münster, Pferdegasse 3.

I am much indebted to Professor Dr Winfried Remy, Münster, for his kind loan of the type-material and also for his arrangements in photography. My warmest thanks also to Professor Dr Eva Potzta, Berlin-Dahlem, for her confirmation of my taxonomic revision to *Nypa* and for fruitful discussions and demonstrations of the Recent analogous *Nypa fruticans* Van Wurmb from different localities of the Indian-Malaysian Archipelago.

H. JAHNICHEN, Berlin, Germany

## BOHEMIAN BIOGRAPHIES III: THE STORY OF *TEMPSKYA*

This part of my biographical sketches comprises a little bit longer period of Bohemian palaeobotanical history but, actually, it is devoted to one man: a young university student Eduard Rodr, later a professor at a secondary school in the town of Pisek in southern Bohemia. His name does not belong to those of the famous palaeobotanists repeatedly cited in lists of references. For the first but last time it appeared in 1878. But, let me start the story from the very beginning.

In 1845 - in the time of full prepossession in different kinds of mineralized stems - August Corda erected the famous fossil genus *Tempskyia*. Having no possibility to make our modern thin sections, Corda moistened the surface of polished, cross-sectioned trunks and observed silicified structures under incident light. With the help of

such a "primitive" method, he established tens of fossil plant taxa. Many of them are still valuable taxonomical entities but, no wonder, others represent superfluous ones.

*Tempskya* was originally described as a genus including four species and representing some Upper Cretaceous tree ferns. The generic name has been derived from the surname of Corda's friend Friedrich Tempsky, a well known bookseller and publisher in Prague (1821-1902). His father had come from Saxonia and owned the bookseller's shop called Calve. Born in Prague on February 18th, 1821, Friedrich spent his childhood in Wirtemberg. After studies in Vienna and some practice in Frankfurt am Main, Bruxelles, France, England and Switzerland, he came back to Prague in 1840 - to take possession of his father's house.

During the following decades F. Tempsky belonged to those German-speaking patrons who abundantly supported the scientific activities of naturalists in the Czech Patriotic Museum. The publishing house Tempsky was a permanent source of books for the Museum library and Tempsky himself was an active member of the Museum Society. Up to his death on July 13rd, 1902, he supported young naturalists by financial offers and bequeathed a charitable foundation.

As an amateur botanist, trained by Jaquin, Tempsky collected a remarkable herbarium, too. He was in friendly relations with both Corda and Dormitzer. I am sure that is expressed in the naming of *Tempskya*, published in 1845.

Less than a year later, Corda described another Cretaceous stem: *Palmacites varians* (Corda in Reuss 1845-1846), coming from Upper Cretaceous strata of Bohemia, the Peruc-Korycany Formation. Corda considered it as the remains of some ancient palm-like tree. The determination was also emphasized by Unger (1850) who made only a formal correction: *Fasciculites varians* (Corda) Unger. On the other hand, Unger undertook all four of Corda's species of the genus *Tempskya*. As late as in 1888, J. Velenovsky revised the previous studies in this "Die Farne der böhmischen Kreideformation" and suggested the idea of the genus *Tempskya* Corda and the species *Fasciculites varians* (Corda) Unger which represent remains of the same Cretaceous tree fern. He judged the fossils to be the mineralized lower aerial parts of the stem with a mantle of adventitious rootlets and leaf petioles, originally belonging to the species *Protopteris* ("Dicksonia") *punctata*. Well, after some forty years, the famous *Tempskya varians* (Corda) Vel. appeared in the palaeobotanical literature - having been there until now. Nevertheless, in this moment we must allow Eduard Rodr to come into the picture.

As many other young naturalists and university students of his times, Rodr was a member of the Naturalists Club in Prague from April 22nd, 1877. He studied at the Prague University and - as such - he also had to meet Professor Dr Antonin Fric (Anton Fritsch), a famous and outstanding Bohemian scientist of the second half of 19th century. This authority used to engage "philosophiae candidatos" in studies on palaeontological objects.

The studies served not only as more or less valuable contributions to the determination of the Museum collections but mainly as practical exercises in scientific work. Young naturalists had to report and publish on their investigatory results and, in this way, they learned to formulate scientific speeches and articles as well as to take a part in professional discussions during lectures.

As far as I can judge from the known data, E. Rodr was "ordered" to make a short account of Bohemian *Psaronius*-like fossils and similar Cretaceous trunks accumulated in the Museum repositories. Seemingly, the work progressed rapidly. On November 11th, 1877, Rodr reported on *Psaronius*; on January 18th, 1878, he lectured his comments to the genus *Palmacites*; on May 9th 1878 he obtained financial support for further investigation in the Museum... and in July of the same year his study was published in the Czech-printed periodical *Vasmir*. What idyllic times....! The article was entitled "On trunks from Bohemian Cretaceous Formation" and dealt with *Tempskya* and *Palmacites varians* only.

Due to careful microscopical observation, Rodr was able to recognise and depict anatomical details of rootlets in both the mentioned types of trunks. The result was surprising: *Tempskya* and *Palmacites varians* are identical fossils. Thus, the student Eduard Rodr proved that Corda - by contemporary microscopical methods of course - described the only fossil plant remains as alleged five species of two phylogenetically different genera.

Unfortunately, this important taxonomical discovery was not expressed in the form of a valuable nomenclature operation. Maybe, Rodr himself was rather irresolute to suggest a recombination without further, more precise evaluation of the results obtained. But the study did not fall into oblivion. After some ten years it was found for use when Velenovsky made his "order in the hovel" of aged labyrinth of Bohemian Cretaceous plant fossils.

Until now, tempskyas have belonged to the most famous palaeobotanical objects coming from the Peruc-Korycany Formation (Cenomanian). The "temporary palaeobotanist" Eduard Rodr died as a retired headmaster of a provincial secondary school in the first quarter of the 20th century. I am sure he has his honourable place in the history of Bohemian palaeobotany.

A. HLUSTIK, Slany, Czechoslovakia

## ON THE USE OF ELECTRONIC MAIL

Most large institutions support a mainframe computer of some description. Many of these are linked into a computer network (the British JANet - Joint Academic Network - for example). These countrywide networks are, in turn, linked via gateways into continental and worldwide networks. So what? If your institution has a mainframe, or equivalent, then you should be able to get a 'username' and filespace on it. Computer centre staff are frequently extremely helpful in this respect. Once you

have this you have the means to communicate with other palaeobotanists quickly and effectively.

By sending electronic mail you do not have to wait vast periods of time for a letter to travel around the world. You do not have to leave telephone messages when you ring and discover that the person you are trying to contact is unavailable. It is usually cheaper than a fax message. Obviously there are disadvantages as well. When sending messages over long distances there are more links in the chain which may go wrong. Most systems can be set up to give an error message if your mail does not arrive at its destination, so at least you will know.

The biggest problem, however, is finding out the username and address of the person you are trying to contact. Below is a list of those known to the IOP office at the present time. If you have a username that you wish to publicise then let the IOP office know. The newsletter is an ideal vehicle for such things. Those who already have such links can contact the office in the prescribed manner, you may also send articles for the newsletter to the address for Phillip Holmes given below!

These addresses will work within the UK, to send a message from another country you may well have to add another prefix between the '@' symbol and the 'uk'. Your computer centre should be able to advise you on this.

Chris Berry : [berryc@uk.ac.cardiff.taff](mailto:berryc@uk.ac.cardiff.taff)  
Mike Boulter : [boulter@uk.ac.pel](mailto:boulter@uk.ac.pel)  
Bill Chaloner : [uhba003@uk.ac.rhbnc.vax](mailto:uhba003@uk.ac.rhbnc.vax)  
Alan Hemsley : [uhba010@uk.ac.rhbnc.vax](mailto:uhba010@uk.ac.rhbnc.vax)  
Phillip Holmes : [boulter@uk.ac.pel](mailto:boulter@uk.ac.pel)  
or [uhbt008@uk.ac.rhbnc.vax](mailto:uhbt008@uk.ac.rhbnc.vax)  
Warren Kovach : [wlk@uk.ac.aberystwyth](mailto:wlk@uk.ac.aberystwyth)  
Imogen Poole : [uhbt004@uk.ac.rhbnc.vax](mailto:uhbt004@uk.ac.rhbnc.vax)  
Rosalind Singer : [udba119@uk.ac.kcl.cc.hazel](mailto:udba119@uk.ac.kcl.cc.hazel)

If you do not consider yourself to be 'computer literate' do not be put off, it is worth persevering and does not take long to learn. Not all countries have such links, those in eastern Europe however should have them soon. Recent press reports in the west have said that East Germany should gain access to networks via West Germany; Czechoslovakia is also close to gaining such access.

PHILLIP HOLMES, London, UK

## NEWS OF INDIVIDUALS

CAROLE T. GEE is now pursuing new research interests in Tertiary floras of Europe and North America in Bonn. Her new address: Institute of Paleontology, University of Bonn, Nussallee 8, D-5300 Bonn 1, West Germany (tel. 0228/73-2737 or 0228/73-3103; fax 0228/73-2508).

DAVID L. DILCHER has moved to the Florida Museum of Natural History, University of Florida, Gainesville, Florida 32611-2035, USA. museum phone 904 392 1721; office phone 904 392 6560; fax 904 392 8783

## OBITUARIES

### RICHARD GERMER 1903 - 1987

Richard Germer died on August 21, 1987 at the age of 83. He was born on November 26, 1903 in Ottweiler (Saar). Having finished his studies in 1924 he worked in some establishments and from 1926 to 1961 at different schools as a teacher. After the the Second World War he was a miner in the colliery Hirsch-bach of the Saar Basin (1946-1948). Then he began his palaeobotanical studies in this basin. He became 1961 custos of the geological collections of the Bergingenieurschule at Saarbruecken-Von der Heydt. He arranged the collections of the museum and identified the fossils.

After his discharge from active service in 1967 he continued to work on palaeobotanical and stratigraphic problems of the Saar Basin. So he became the specialist especially of the ferns of the fossil flora from the Saar Basin. He has described more than 25 new species.

Later he became the honorary president of the Society for the advancement of the Geological Museum at Saarbruecken. More than thirty publications often with noted colleagues demonstrate his style of work - quiet, steady, scientific and to the point. GERMER was also interested in poetry and astronomy, and he has published in these fields.

Germer was characterized by his modesty and his readiness to help. He was always full of energy and scientific plans. His sudden death is a loss to our subject. He will be missed by all who knew him personally or who only corresponded with him.

D.H. STORCH, Freiburg, Germany

### RICHARD H. EYDE 1928 - 1990

Dick was a Curator of Botany. He died on the 27th May 1990 at his home of colon cancer after a short illness.

Dick was an internationally recognised plant anatomist specialising in the relationships of dogwood and their relatives (Cornales), but he delved deeply into other areas, including the fossil record. He joined the staff in 1962. Historians have noted Dick's chapter: "Expedition Botany, the Making of a New Profession" in Viola's "Magnificent Voyagers" (1985), as outstanding for its "wealth of research, historical insight and graceful narrative." This comment applies equally to his lucid lectures and publications. Dick's "Foliar theory of the Flower" (1975) attacked the textbook interpretation of the flower and is still cited. His "Comprehending *Cornus* : Puzzles and Progress in the Systematics of the Dogwoods" (1988) will be the standard source on dogwoods for a long time to come. It is unfortunate that Dick could not finish his synthesis on *Nyssa*, but he has arranged for colleagues to pick up where he left off.

Dick was a respected colleague and friend to us and to many all over the world. We will miss him and his ever present humour.

L.E. SKOG, Smithsonian Institution, Washington DC, USA



# EVOLUTION, SYSTEMATICS AND FOSSIL HISTORY OF THE

**HAMAMELIDAE.** EDITED BY PETER R CRANE & STEPHEN BLACKMORE, 1989, THE SYSTEMATIC ASSOCIATION SPECIAL VOLUMES No. 40 A & B, pp. 305, 356, ISBN 0-19-857711-7, 0-19-857726-5.

Rapid progress in research of Cretaceous Angiosperms revealed their major grouping, among which Hamamelidae are well represented in spite of the fact, that they appear more advanced than Magnoliidae. Because of the large number of contributors, two volumes emerged, the first one devoted to general questions of systematics and "lower Hamamelidae", the second one to the "higher Hamamelidae".

Before entering into details, two general views of relationship and position of Hamamelidae have been presented - Hamamelidae represent a coherent, but paraphyletic group linked to 60th Magnoliidae and Rosidae/Dilleniidae (Ehrendorfer); or Hamamelidae are heterogeneous group of relatively unrelated orders (Thorne), both views being based mainly on a analysis of extant taxa. Most further accounts supported in some way or partly the former interpretation basing both on extant and extinct morphological details (Donoghue & Doyle, Dickinson, Hufford & Crane), leaf architecture (Wolfe), sieve-element plastids and phloem proteins (Behnke), karyology (Morawetz & Samuel) and reproductive organs of Cretaceous record (Friis & Crane). New studies in floral ontogeny, morphology of Myrothamnaceae (Endress), Rhodoleioideae (Bogle), Hamamelidoideae (Endress) and a survey of Liquidambaroideae (Ferguson) supplied data pointing towards natural grouping of genera and sometimes even to find connection of "lower" and "higher" hamamelids. On the other hand, Buxaceae appeared to stand apart (Jarvis), the position of Didymelaes (Sutton) and Daphniphyllaceae (Sutton) remained somewhat controversial.

The second volume is devoted to "higher Hamamelidae" and includes variously focused subways of extinct and extant groups previously ranged into amentifers and urticalean apetalas. We may again notice two approaches to solving evolutionary problems - one of neobotanists and another of paleobotanists. The former prefers more detailed anatomical-ontogenetical analysis of reproductive organs, genetical and biochemical data and rarely incorporate (or rely upon) "fragmentary" fossil documentation. The latter usually stress information about organs preserved in fossil state (fruits, pollen, anatomy of vegetative organs) and try to submit the most valuable fossil record available so far. Both approaches are somewhat inconsistent but there is a good chance that once the debate has started it is only a question of time until common lines of evidence or a synthesis of botanical and palaeobotanical arguments become a reality.

The extinct Normapolles Group can serve as an example that a single organ - in this case a pollen grain - is not sufficient enough to allow assessing true relation-

ship in spite of extensive studies (Kedves, Batten). The Fagaceae have always attracted much attention and the accounts produced by Nixon, Crepet and Kaul only stress the present situation that more and more new data is accumulating of both extinct and extant taxa, allowing evermore profound grouping of fagalean lineage. The same applies to Betulales (Crane) and Juglandales (Stone). On the other hand, our incomplete knowledge of early differentiation of myricalean and urticalean groups prevents verification of developmental pathways suggested by studies of characters of extant taxa only (Macdonald, Berg, Manchester, Takahashi, Humpries & Blackmore, Ramirez, Friis, Woodland, Collinson). Nothing or nearly nothing is known of the fossil differentiation of Deithneriales and Casuarinales (Jarvis, Johnson & Wilson). Hence, much speculation remains as to connecting these groups within the framework of "higher Hamamelidae". The last account (Gomez-Laurito & Gomez) makes clear that in the extant world flora new surprising recoveries of taxa representing even new families can still be expected. Further field work in rarely collected areas is most desirable before unknown plants are destroyed by human civilisation.

Z. KVACEK, Prague, Czechoslovakia

## SILVIANTHEMUM SUECICUM GEN. ET SP. NOV., A NEW SAXIFRAGALEAN FLOWER FROM THE LATE CRETACEOUS OF SWEDEN. BY ELSE MARIE FRIIS. BIOLOGISKE SKRIFTER, v36, p.1-35, 1990.

This paper describes the anatomical features of a new saxifragalean flower which has been named in honour of the Queen of Sweden. The whole charcoallified specimens were found at a quarry in Scania within the late Cretaceous clay gyttja unit.

The text is divided into subsections which guide the reader through the technical details and the plates clearly demonstrate the features described. The excellent preservation of the specimens is illustrated in the thin sections (and scanning electron microscope photographs) which show that the cellular detail of the flower is still present. However, a few of the figures are wrongly cited in the text and the reader is sometimes required to flick between plates within one sentence of the text.

The discussion provides a lengthy comparison of *S. suecicum* with modern and fossil Saxifragales. It would be demanding to tabulate this information, however, such a presentation, combined with an illustration of a modern specimen, would be of considerable benefit to the non-specialist.

The discovery of *S. Suecicum*, together with fossil flowers previously described from the same locality shows that the Saxifragales were already a diverse group as early as the late Cretaceous. This paper is thus an important contribution to our understanding of flowering plant evolution.

ROSALIND SINGER, London, UK.

## TEXTBOOK OF POLLEN ANALYSIS.

K. FAEGRI AND J. I. VERSEN - 4 TH EDITION BY K.

FAEGRI, P.E. K. ALAND AND K. K. RZYWINSKI JOHN

WILEY AND SONS LTD. CHICHESTER. PRICE £51.00

This book has appeared nearly 40 years after the first edition and should prove as useful to today's beginners as the original did then. It has a logical structure, starting with a brief history of the origins and development of the subject. The authors concentrate on what they term 'classical pollen analysis' - the use of pollen and spores to reconstruct Quaternary vegetation. As they point out, however, much of the material covered in the book can be easily adapted to other forms of palynology.

Chapters 2 - 7 are ordered to give a history of the travels of pollen grains. This is neatly summarised in a table on page 2. Chapter 2 deals with the production and dispersal of pollen grains. As a taphonomist I found this to be a particularly good summary of the state of play in this field. It describes the many sources of bias that influence the final assemblage in the sediment. I would argue with some of the points raised. The assertion that trunk-space transport of pollen grains does not take place is not a resolved issue. The authors cite Andersen's (1967) work as evidence for this: "there is an almost perfect correlation between the composition of the pollen on the forest floor and that produced overhead." The large quantities of pollen that are carried to the forest floor by stemflow may well account for part of this correlation. Whilst trunk-space transport may not form a large part of the pollen rain it should not be completely dismissed.

The notes on the water transport of pollen to sediments were also a little too brief for my liking. I accept, however, that the authors cannot be expected to cater for all tastes; the summary given is a good one yet I feel that the work of Peck should have been mentioned.

Having discovered how the pollen gets to the sediment the reader is then taken through a descriptive list of sediment types (chapter 3). Chapter 4 continues with a description of the various tools and techniques required to recover samples. Emphasis is made on the need to avoid contamination and the necessity of making good field notes, especially at sites which may not be revisited. Once the reader has collected samples they may turn to chapter 5 to discover methods for the extraction of the pollen. All of the standard techniques are given space and evaluated in the light of the authors' experience. Also included in this chapter are notes on how to mount and count the residue from a pollen preparation. Much of this is obvious to those who are experts in this field, to a newcomer the information is invaluable.

By this point in the book I almost had the feeling that I was being led by the hand. The next two chapters strengthened this feeling (how to present and interpret the results), I was disappointed to find that the answers to all my problems were not subsequently reviewed! What does follow is a chapter on how to use the data that has been retrieved. The applications of pollen analysis are

split into two categories, direct and indirect. The direct application is the reconstruction of past vegetation. Indirect applications are those which are inferred from the changes (or stasis) found in the vegetational patterns; these include climatic and anthropologic deductions. Geological applications are glossed over, being generally beyond the scope of this book. In contrast to this a complete chapter is given over to archaeopalynology and the study of recent human agricultural activities.

Six pages are given over to a chapter labelled 'some other microfossils', including spores, tissue fragments, algae and diatoms. Some methods of preparation for these are given along with a brief description of their uses.

Leading up to the pollen identification key, chapter 11 describes the 'form and function' of pollen grains. The authors concentrate on morphological features, these being the attributes that are used in pollen analysis; other features, such as cell contents, are generally not preserved in fossil pollen. Descriptions of exine layering are included here, with brief notes on their ontogeny. This is immediately followed by descriptions of different structure and sculpturing elements and aperture morphologies. This is done in a helpful manner, describing both the elements and how they may be recognised under the light microscope.

The publishers have taken the unusual step of making chapter 12 available as a separate publication. The key is preceded by four pages of helpful notes. These explain how the key is constructed and which pollen features are the most useful. Table 12.1 gives a smaller key to help newcomers to the field into the sculpture terminology. This is accompanied by a figure containing a small sketch of each sculpture type. The authors warn that the keys are not for absolute beginners as they assume a knowledge of morphological evaluation. They are however neatly and orderly arranged, they are well illustrated with small 'thumbnail' sketches. I have to admit that I have not used the key at the microscope. Instead I picked a well known pollen grain (*Betula*) and attempted to track it down. This procedure took less than two minutes; however, it would have been a lot faster if the lists of tables were listed with the appropriate page numbers. Chapter 13, the glossary, is well placed, it being relatively easy to cross check between this and the key.

As a whole I found this book extremely well written. The style of writing also makes it relatively easy to read. Most of the chapters are self contained, it is therefore not necessary to read the entire book to discover what you need to know (unless you're writing the review!).

One feature that I particularly enjoyed was the motto that came with the beginning of each new chapter. Many of these are good rules to follow (Chapter 4: 'Conduct the field work as if you will never be able to return to the site') whilst others are merely comments - Chapter 2: 'Gone with the wind' (on pollen dispersal) and Chapter 9: 'With man, sin came into the world' (on Archaeopalynology).

PHILLIP HOLMES, London, UK