

November, 1996

Volume 29, Number 4

| | |
|---|----|
| Editorial | 1 |
| Book Reviews - Spore Morphology of Chinese Pteridophytes | 1 |
| From the shores of the Atlantic: the UK Palynological scene | 2 |
| Upcoming events | 4 |
| PhD Theses | |
| - The reproductive biology and extinction of the Walchiaceae (Late Palaeozoic conifer) | 7 |
| - Palaeobotany and palynology of Neogene sediments from the high plain of Bogotá (Colombia) | 8 |
| From the shores of the Pacific: ODP comes to British Columbia | 9 |
| Dinium-Alpha: A database builder for dinoflagellate cyst taxa | 10 |
| The Paleonet | 11 |
| Positions and Jobs | 11 |
| Websites | 12 |
| Something about Utrecht | 12 |



AASP NEWSLETTER
MOBIL OIL COMPANY
P.O. BOX 650232
DALLAS, TEXAS 75265-0232



A.A.S.P. NEWSLETTER

Published Quarterly by the American Association of Stratigraphic Palynologists Inc.

November, 1996
ISSN 0732-6041

Volume 29, Number 4
Jan Willem Weegink, Editor

BOARD OF DIRECTORS

| | |
|--------------------|--------------------------|
| President | Gordon Wood |
| President Elect | Rolf Mathewes |
| Treasurer | David. T. Pocknall |
| Editor-in-Chief | David K. Goodman |
| Past President | Jan Jansonius |
| Directors at Large | Jocelyn Legault |
| | Javier Helenes-Escamilla |
| | Gretchen Jones |

AASP NEWSLETTER CORRESPONDENTS

| | |
|--------------------|----------------------|
| Koldo Núñez-Betelu | southern Europe |
| Niels E. Poulsen | the Nordic Countries |
| James B. Riding | the United Kingdom |

AASP BOOK REVIEW EDITOR

Reed Wicander

AASP WEBMASTER

Martin J. Head: head@quartz.geology.utoronto.ca
AASP Homepage: <http://www.geology.utoronto.ca/AASP> (the address is case sensitive)

AASP NEWSLETTER EDITOR

Jan Willem Weegink
LPP Foundation
Laboratory of Palaeobotany and Palynology, University of Utrecht
Budapestlaan 4, 3584 CD Utrecht, The Netherlands
Vox +31.30.253.1909/2799/2629; Fax +31.30.253.5096
janwillem@boev.biol.ruu.nl

The AASP Newsletter is published four times annually. Members are encouraged to submit articles, "letters to the editor", technical notes, meetings reports, information about "members in the news" and information about job openings in the industry. Every effort will be made to publish all information received from our membership.

The deadline for the next newsletter, the first of 1997, is January 3, 1997. All information should be sent on computer disks (MS Word for Windows is best) or by email; if possible, send a hard copy. Always send a duplicate typescript of all electronic copy sent for checking. If possible, please illustrate your contribution with art, line drawings, eye-catching logos, black & white photos, colour photos, etc. We look forward to contributions from our membership.

Editorial

Facing both the challenge to match Martin Head's eminent editorial achievements of the past few years, as well as the swoon in footage from what must be the post-IPC, post-holidays calm in the land of AASP news, your new editor has been in great agony and despair, and suffered many a sleepless night before his maiden newsletter was finally liberated from the grasp of its tormented composer. But so much for pathos.

Taking the newsletter editorship out of America and into Europe for the first time in its almost 30 years existence should not allude to a potential shift in coverage of these areas but, instead, produce topical information from the old world as well as the rest of our planet which hopefully will continue to be submitted as before.

In fact, quite a few things are happening in palynology in Europe and palynology is being exercised in a fair number of institutions. Despite the fact that national organisations are thriving, there is no real European palynology society. An attempt to "Europeanize" CIMP and an initiative called Eurodino (what's in a name) many years ago failed. However, the co-ordinating rôle of AASP might make such a European organisation superfluous.

One might argue that people in search of information may perhaps not need an organisation with newsletter and may nowadays even turn to the Web (the world-wide one) which, once familiar with the procedures, offers enough "info" to fill a lifetime. Notwithstanding the Web's assets, it reputedly causes severe "info-stress" and does not keep the family together.

So leave the Web-fits to me and enjoy the newsletter. It will take some time to set up my network of newsletter contributors for "European affairs". In the meantime you are all invited to submit contributions and suggestions of informative, inquisitive or uplifting nature to my address.



Spore Morphology of Chinese Pteridophytes.

Zhang Yulong, Xi Yizhen, Zhang Jintan, Gao Guizhen, Du Naiqiu, Sun Xiangjun, and Kong Zhaochen. 1990.
Science Press, Beijing. 592 pages, 101 plates. \$100.00 US.

With the advent of the "Great Age of Technology," and the expanding universe of the World Wide Web, some believe that

books printed on paper are becoming a relic of the past. Today one can locate pictures of pollen grains at various web sites, others can buy pollen atlases that are produced on CD disks, and still others can download the various articles and text-figures about palynomorphs from Internet sources all over the world. Because of the availability of all this "high tech" data, one might ask if reviewing books, especially ones printed on paper, is still a worthwhile endeavour? I would respond by saying, "yes, books printed on paper and reviews of them are still important!"

Now that we have established a "raison d'etat" for book reviews, I would like to share my comments about a recent book printed in China. The book, *Spore Morphology of Chinese Pteridophytes*, is one of those "must have" books you will need to add to your shelf. It is one of those references that still can't be found on, or downloaded from, the Internet. The book is somewhat expensive, though not as expensive as some of the more recent French pollen atlases on the market.

As you will note from the introductory information, this book review comes six years after the book was first published in 1990. In spite of this slight drawback, I feel the review is timely because I doubt that many palynologists outside China have copies of this book, and I would bet that many do not even know that the book exists. I only learned about this book a few months ago when I was asked to review it for the Newsletter.

This book represents a guide to pteridophyte spore morphology of types found in all regions of China. In the first chapter the authors note that more than 12,000 species of pteridophytes exist in the world and of those, at least 2,600 species grow in China. The present Chinese flora include pteridophyte species in 54 different families and there are about 200 separate genera. The authors devote the first few chapters to a discussion of fern distributions in different geographical regions in China, provide a brief overview of the major fern taxa found in each region of China, offer a brief summary of fossil fern spores recovered from Paleozoic and Mesozoic deposits in China, and conclude with a section devoted to the fossil spores of the Chinese Cenozoic Period.

The third chapter is a brief discussion of how each specimen used for their atlas was collected and processed, how each of the traced line drawings was made, and finally a statement about the micrographs for each spore type. Chapter four consists of a general discussion about morphological terminology and definitions used in book.

The vast majority of the book (500+ pages) is devoted to a detailed study of each spore type. Beginning with spores in the family Psilotaceae, and ending 52 families later with the spores of the Azollaceae, the authors offer a precise discussion for each spore taxon. Many of the taxa also include beautifully hand-drawn line drawings (i.e., most are drawn at magnifications of 500x to 1,000x), which the authors say came from careful tracing. Each taxon is also illustrated by one or more micrographs located in a single section devoted to photographic plates.

There are a number of nice features about this book. First, all of the micrographs are shown at a magnification of 500x, except for a few cases where changes in magnification are clearly noted. Second, the micrographs are of good quality. The authors were careful not to include light and dark pictures together on the same plate, and the vast majority of prints are in sharp focus. Third, there are two alphabetical indexes based on the Latin names of all taxa mentioned in the book. One lists all extant taxa and the other lists all fossil taxa. Both indexes list both the text and plate page numbers for each taxon.

Overall, this is an excellent, and useful spore atlas. The line drawings are of high caliber and the text is readable and written in clear English. The micrographs are of high quality and most clearly illustrate significant ornamentation and other morphological

features. Paper quality of the book is good, but I would have preferred to see the plates printed on paper with a higher clay content in order to provide higher quality photographs. I am not able to verify the data presented in the text portion of the book. However, I have no reason to doubt the accuracy. The only thing that puzzled me about the book was that the authors included five families of fern allies (Psilotaceae, Lycopodiaceae, Selaginellaceae, Isoetaceae, and Equisetaceae) under the broad heading of Pteridophytes. That classification system is now out-of-date, even though it was popular decades ago.

The \$100 (U.S.) price tag may sound steep, but experience has shown that when one delays the purchase of a palynomorph atlas, it is unavailable later. This is why I would urge each of you to consider your purchase of this book now rather than waiting. Perhaps some day in the near future all of these atlases will be available on CD disks or can be downloaded from some Internet site. Until then, we are still bound by the need for books made of paper!

(Copies can be ordered by mail or by email from: Dr. Qinhua Jiang, Department of Geology, Peking University, Beijing 100871, People's Republic of China; Email: qjiang@geoms.geo.pku.edu.cn)

Reviewed by Vaughn M. Bryant, Jr.
Professor and Head, Department of Anthropology
Director of Texas A&M Palynology Laboratory
Texas A&M University
College Station, Texas 77843-4352
Telephone (409) 845-5242 Fax (409) 845-4070
email (vbryant@tamu.edu)



The UK Palynological Scene

Recently there have been significant changes at the University of Sheffield. Dr Bernard Owens of the British Geological Survey (BGS) has been appointed to the new position of Director of the renamed and redefined Centre of Palynology. Bernard has been given a chair, which makes him the fourth Professor within the Department of Earth Sciences. This position is not full time and does not affect Bernard's position as the Manager of the Biostratigraphy and Sedimentology Group of BGS. Previously, all palynological activity at Sheffield was divided between the Centre for Palynological Studies and the Industrial Palynology Unit. These two elements are now being entirely amalgamated. Other significant changes are that the Centre of Palynology is moving sites from the Mappin Street buildings, which was home to the old Geology Department throughout its history, to new accommodation within the Department of Earth Sciences in the Beaumont Building at the Universities main Brookhill site. Furthermore, Dr Ted Spinner is to retire later this year. It is intended to find a replacement to help run the MSc Course with Dr David Jolley. Bernard intends to expand the doctoral research programme and to build on the strengths of the long established Masters (MSc) course in Palynology. It is hoped to introduce new elements to the MSc course in order to make future graduates marketable to the principal employer of palynologists, the oil industry. This is in direct response to changes in exploration departments where rounded, broad-based stratigraphers who have good communications skills,

are computer literate and are able to seamlessly switch disciplines to, for example, seismic interpretation, sequence stratigraphy, log interpretation and sedimentology are required. In short, to be flexible petroleum geologists with a speciality in palynostratigraphy. This said, the principal emphasis of the MSc course will continue to be our core subject, palynology.

With the recent withdrawal of Aberystwyth and Southampton from Micropalaeontology Masters programmes, the remaining courses (i.e. Palynology at Sheffield and Micropalaeontology *sensu lato* at University College London [UCL]) is now closer to the recruitment needs of industry. The UCL course emphasises breadth and integration; it includes course units on calcareous, silicious and organic-walled microfossils. The palynology element of the UCL MSc course is taught by Susan L. Matthews and W. G. (Bill) Chaloner. Recent projects have included a study of Aptian dinoflagellate cysts from the Speeton Clay and the palynofloras of the Late Triassic marine transgression in southern England. Recent doctoral theses at UCL have concerned the Neogene of the Niger Delta (Dr James Edet, Elf Nigeria) and the Late Permian-Triassic of the north-east Atlantic margin (Dr Phillip Dolding). More information on:

<http://www.ucl.ac.uk/geolsci/edu/pggrads/micropal/index.html>.

Other personnel changes at the University of Sheffield include the recent arrival of Martin Wilpshaar from Utrecht to work on an industry-sponsored Tertiary research project with David Jolley. Martin recently completed his PhD at the Laboratory of Palaeobotany and Palynology (LPP) on the applicability of dinoflagellate cyst stratigraphy to the analyses of passive and active tectonic settings with specific examples from the Lower Cretaceous and Oligocene of France and Greece respectively. Henk Brinkhuis recently informed me that Martin represents the first successful penetration of Utrecht into Sheffield.

More from Sheffield: David Jolley has recently taken over the chair of the Palynology Group of the British Micropalaeontological Society from David Batten.

There was a significant UK/Ireland presence (55 oral/ poster presentations) at the Ninth International Palynological Congress in Houston during late June 1996. This was despite relatively costly travel and accommodation at the J. W. Marriott Hotel. The five concurrent sessions provided a wonderful diversity of palynological topics and everyone I have spoken to agrees that it was an excellent meeting. Some of the keynote addresses were outside of palynology. For example (appropriate for Houston), Henry Posamentier gave a very interesting discourse on forced regressions and incised valleys to kick off the sequence stratigraphy session. Ex-Sheffield old boy Graham Williams gave a dewy-eyed 'thank you' speech at the AASP Business Luncheon following being presented with an AASP Scientific Medal of Excellence. For the soccer fans present, one of the most memorable events was the second semi-final of Euro '96 between England and Germany. Immediately following the AASP Business Luncheon, on Wednesday June 26th, around 20 interested English, Dutch, Canadian, Norwegian and Scottish parties headed for the Sports Bar in the nearby, labyrinthine Galleria shopping complex to watch by far the best and most dramatic match of the entire tournament. Defeat for England was almost overcome by the unquestionable quality and entertainment value of the game. Needless to say, the staff and the few other indigenous customers of the Sports Bar were somewhat bemused by the event and terminology such as 'golden goal time' and penalty shoot-out'. The traditional IPC Sheffield Alumni dinner was held at a local steakhouse 'The Taste of Texas' and was attended by about a dozen present and past Sheffield palynologists. We had hoped to get a private room, but this proved impossible at this large and crowded eatery. This meant that the senior Sheffielder present, Bill Sarjeant, was spared from having to

give an uplifting speech, heavy with nostalgia. Unfortunately prior engagements kept Dave Wall and Graham Williams away, but Geoff Clayton, Barrie Dale, Chris Denison, Ken Higgs, Nicos Ioannides, Duncan McLean and Tim Potter were among those present. The staff were clearly honoured at hosting such an auspicious event and presented us each with a small glass cowboy boot and one of those neckerchief things that cowboys wear (sorry, I don't know the correct terminology).

Many thanks to Professor Alan Lord of University College London for information regarding micropalaeontology at UCL.

Jim B. Riding



Upcoming events

Announcements submitted by Niels Poulsen, Jamie Powell, Paul Strother, CAP Homepages and the web.



AASP 1997 ANNUAL MEETING: WOODSHOLE, MA

Now that the excitement of IPC in Houston is beginning to fade, it's time to be thinking about the next AASP annual meeting, September 14 through 19, 1997 in Woods Hole, Massachusetts, US. The meeting format will include an extended seminar series on the evolution of the marine phytoplankton in addition to the regular technical sessions. The purpose of this will be to bring together scientists from the disparate disciplines that touch on this topic, such as: systematics of living and fossil dinoflagellates, stratigraphic history of phytoplankton groups, past and present relations between climate and phytoplankton, phytoplankton ecology and paleoecology, evolution of protists and the origins of phytoplankton groups, the physiology of cyst formation, etc. We hope to use this thematic style to bring researchers from both inside and outside the immediate AASP active membership into a productive and rewarding setting. To this end we have invited researchers to attend the meeting and give keynote addresses. At present, these include:

- Life in the Precambrian Seas.
- The Evolution of Phanerozoic marine ecosystems.
- Dinoflagellate systematics.
- The evolution of the diatoms.
- Evolution and paleoecology of nannofossils.
- Phytoplankton diversity through time.

We invite the participation of researchers who are interested in the role of phytoplankton in marine ecosystems and the possibility of using the fossil record of the phytoplankton to study the evolution of oceanic/shallow marine ecosystems. The meeting will also include regular technical sessions on all aspects of palynology.

Tentative Schedule

Sunday, September 14: Arrivals and welcome reception
Monday, September 15: Technical sessions, AASP board meeting
Tuesday, September 16: Technical sessions, evening lecture on "The evolution of Phanerozoic marine ecosystems"
Wednesday, September 17: Technical sessions, evening social (clambake)

Thursday, September 18: Technical sessions, AASP luncheon & board meeting

Friday, September 19: morning departure

About the Meeting Venue - The Swope Center at the Marine Biological Laboratory (MBL) in Woods Hole provides meals and housing to participants at a very reasonable cost. The meeting rooms are a 2 minute walk from the Swope Center itself; meals and coffee breaks are served in the dining room, which is in the same building as housing. The housing is dormitory style, all rooms have private baths. The dining room looks out over picturesque Eel Pond. Participants may adjourn to local pubs for refreshment, it is just a few minutes to walk into Woods Hole village.

Travel to Woods Hole - Air travel to Boston's Logan international airport puts participants within a two-hours drive of Woods Hole. There is frequent (hourly) commercial bus service to Woods Hole from Logan airport. Schedules will be mailed to those preregistering for the meeting. Rental cars are available at Boston's Logan airport for those who wish to experience Boston driving for themselves.

Costs - Participant cost will be quite reasonable. Single occupancy at the Swope Center is currently about \$90 per day and only \$70 per person per day for double occupancy. These figures include room and board. For those wishing private accommodation, there are several motels within the Woods Hole area.

For registration or further information please contact:
Paul K. Strother at the Weston Observatory of Boston College,
Department of Geology & Geophysics, Weston MA 0293 U.S.
Tel: 617 552 8395. Fax: 617 552 8388.

or

Reed Wicander at the Department of Geology, Central Michigan University, Mount Pleasant, MI 48859. Tel: 517 774 3179. Fax: 517 774 2142.

Also, for more information, please check out the meeting website at, "<http://www2.bc.edu/~strother/1997/1997.html>". You can also link to this site from the AASP home page.



THE IV SPANISH JURASSIC MEETING

The IV Spanish Jurassic Meeting on Stratigraphy and paleogeography of Iberian Jurassic will be held in the city of Alcaniz (Prov. Teruel, Spain), a town some 100 Km east from Zaragoza: September 7-12, 1997. It will include a three days field trip by the interesting Jurassic sections across the eastern Iberian Chain and the Catalanian Range and two days of scientific sessions in Alcaniz. Short abstracts and a field guide will be available at the congress. The complete texts of oral communications and invited lectures will be published later as an ordinary volume of the Spanish geological journal: Cuadernos de Geologia Iberica, published by the Instituto de Geologia Economica, CSIC, Madrid.

The meeting is organised by the Jurassic team of the University of Zaragoza. Convenor: Guillermo Melendez (Paleontologia, Universidad de Zaragoza, Spain). Marcos Aurell (organisation), Isabel Perez Urresti and Graciela Delvene (Secretary).

Oral and poster communications can be submitted to any of the two programmed sessions. The first day will be devoted to the first monographic session: Stratigraphic and paleontological synthesis. This will be intended to promote the presentation of global,

synthetic papers made up by research teams on different aspects of Iberian Jurassic. The second day will be devoted to a general session, including small presentations on local and/or particular problems. The aim of the meeting will be to start an in-depth debate on the paleogeographic evolution of the Iberian plate during Jurassic times.

Registration - February 28th: deadline for returning the pre-registration form. March, 1997: delivery of 2nd Circular. May 31st 1997: deadline for final registration to meeting and excursion. June 30th 1997: deadline for submitting of Abstracts of oral and poster communications. The second circular will be sent only to those who have returned the pre-registration form. The subscription fee for the meeting is 20000 PTA. Subscription fee for the field trip will be also 20000 PTA. Students can benefit from a 50% reduction in both cases (10000 PTA).

Please send all correspondence to: Guillermo MELENDEZ: Dpto. de Geologia (Paleontologia), Universidad de Zaragoza, 50009 Zaragoza, Spain; Tel. No: 34.(9)76. 761076; Fax No: 34.(9)76. 761088; E.mail: guillermo.melendez@msf.unizar.es.

When registering via fax or email, please indicate:

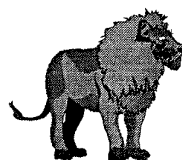
- Complete name and address (City code, etc.).
- Telephone, fax, and email address.
- Whether you will present a contribution. Indicate either oral or poster.
- In which session (monographic/general)
- Whether you will take part in the field trip.

N.B. From February 1st 1997 the figure (9) must be dialled in the telephone and fax number.



IX COLOQUIO DE PALEOBOTANICA Y PALINOLOGIA

The IX Coloquio de Paleobotanica y Palinologia will take place at the Instituto Mexicano del Petroleo, Ciudad de México between 25 and 29th November 1996. The selected themes comprise Precambrian floras, Mesozoic, Tertiary and Quaternary palynology, diatoms and coccoliths, morphology, taxonomy, aeropalynology and melissopalynology amongst others. Registration is US\$45 (students US\$20). For further information contact the coordinator Mónica L. Ayala Nieto on Tel: 00-52 5 368-9333, ext. 21489, Email: mayala@sparc.expl.imp.mx or at the address below. Mónica L. Ayala Nieto, Instituto Mexicano del Petroleo, Eje Ctrl Lazaro Cardenas 152, Del. Gustavo A. Madero Mexico, 07730 MEXICO



3RD the COLLOQUIUM ON THE STRATIGRAPHY & PALEOGEOGRAPHY OF SOUTH ATLANTIC AND 13TH AFRICAN COLLOQUIUM OF MICROPALAEONTOLOGY

The Republic of Cameroon will be organising the 13th Colloquium on African Micropalaeontology and the 3rd Colloquium on the Stratigraphy and Palaeogeography of the South Atlantic between 8th and 13th March, 1997 in Yaounde. The languages of the colloquia will be French and English. The technical and material organisation of the colloquia will be co-ordinated by the Société Nationale de Hydrocarbures with the collaboration of petroleum companies operating in Cameroon, about a dozen Cameroonian ministerial departments, and national and international organisations. Themes include Gondwana palaeogeography and stratigraphic correlation, Lower Cretaceous palaeogeography and

stratigraphic correlation, and Upper Cretaceous palaeogeography, palaeoceanography and stratigraphic correlation, as well as African and American micropalaeontology generally. The deadline for abstract submission is 30th October 1996. Registration fees are 750 FF (students 400 FF). For further information contact the Colloquium Organisation Committee on Tel: 00 237 20 32 53, Fax: 00 237 20 46 51 or at the address below.

Adolphe Moudiki, Société Nationale de Hydrocarbures, B.P. 955, Yaounde, REPUBLIC OF CAMEROON



1ST INTERNATIONAL CONFERENCE ON APPLICATIONS OF MICROPALAEONTOLOGY IN THE ENVIRONMENTAL SCIENCES

The First International Conference on Applications of Micropalaeontology in the Environmental Sciences is to be held between 9th and 13th June 1997 at the Porter Super-Center for Ecological and Environmental Studies and Institute for Nature Conservation Research, Tel Aviv University, Israel. The aim of the conference is to demonstrate the value of living and fossil micro-organisms as indicators of both naturally and anthropogenically stressed environments (especially multidisciplinary studies). Topics will include taxonomy, assemblage structure and spatial distribution, density and diversity, pathology of soft tissue, morphology and chemistry of shells, methodology, statistical methods and mathematical modelling. For further details contact Professor Yanko on Fax: 00-972 3 640 7304 or at the address below.

Y. Yanko, Institute for Nature Conservation Research, Tel Aviv University, Ramat Aviv Tel Aviv, ISRAEL 69978



BIOSTRATIGRAPHY IN PRODUCTION AND DEVELOPMENT GEOLOGY

This international meeting of the Geological Society's Petroleum Group will take place on 16th and 17th June 1997 at Aberdeen University Conference Centre. The meeting is aimed at demonstrating the contribution which biostratigraphy can make to solving some of the problems of production and development geology.

Biostratigraphy is widely regarded as a powerful tool in exploration geology. However, large parts of the oil industry are now focusing on increasing reserves by improving recovery from discovered fields, rather than exploring for entirely new reserves.

With this trend apparent, biostratigraphy now has to apply itself to the relatively small-scale issues of production and development geology such as intra-reservoir correlation to help understand reservoir architecture, connectivity and compartmentalization.

Innovative biostratigraphic techniques have already been developed which, when combined with other geological and geophysical data, help provide the answers to problems faced by the production geologist. These include the development of High Resolution Biostratigraphy through quantitative and semi-quantitative analysis of data, better understanding of paleoecology and depositional environments and the recognition of localised, but useful, marker events. Biosteering of horizontal well is a direct development of these type of approaches, as are the improved reservoir models for a number of North Sea wells.

Papers for the meeting are invited which demonstrate biostratigraphic innovation and which can demonstrate the contribution biostratigraphy can make to production geology; case studies are particularly welcome. It is intended that examples from around the world and in a variety of geological settings will be presented.

The deadline for submission of abstracts is 1st February 1997. Further information and offers of papers or posters should be sent to Mike Simmons on Tel: 01224-273438, Fax: 01224-272785, Email: m.d.simmons@abdn.ac.uk or at the address below.

Michael D. Simmons, Department of Geology and Petroleum Geology, University of Aberdeen, Meston Building, King's College, ABERDEEN, Grampian AB9 2UE



3RD SYMPOSIUM OF AFRICAN PALYNOLOGY

The 3rd Symposium of African Palynology will be held in Johannesburg between 7th and 13th September 1997 at the University of Witwatersrand. Suitable topics for papers and posters span the entire range of palynological research in Africa, from palaeopalynology to aerobiology. The Proceedings will be published in a Special Edition of *Palaeontologia Africana* (registration fees: US\$ 200). For a copy of the First Circular contact Ann Cadman on Email: 106caa@cosmos.wits.ac.za or at the address below.

Ann Cadman, University of Witwatersrand, Johannesburg, REPUBLIC OF SOUTH AFRICA

BRITISH MICROPALAEONTOLOGICAL SOCIETY 1996 ANNUAL GENERAL MEETING - UNIVERSITY COLLEGE LONDON

The 1996 Annual General Meeting will be held in the Anatomy Lecture Theatre, University College London, Gower Street, London WC1E 6BT at 14.15 hrs. on Wednesday 20th November. Following Society business (officer's reports and presentation of the Robertson Research International Stratigraphy Prize), two guest lectures will be presented:

- "Calcareous dinoflagellates ('calcspheres') - their significance in micropalaeontology" by Prof. Dr Helmut Willems (Universitat Bremen), and
- "Nutrients, ocean chemistry and the explosion of animal life across the Neoproterozoic-Cambrian transition" by Dr Martin D. Brasier (Oxford University).

A wine reception for members will be held in the Rock Room, Department of Geological Sciences following the lectures.

Local Secretary; Dr Elspeth Urquhart - Tel: 0044-171-380-7929, email: e.urquhart@ucl.ac.uk

FIRST ANNOUNCEMENT - CALL FOR PARTICIPATION - CALL FOR PAPERS

The final meeting of the UNESCO IGCP Project 335 "Biotic Recoveries from Mass Extinctions" - September 12-14, 1997 Prague, Czech Republic

About the project - In the history of the Earth (including the recent), numerous events of ecosystem collapses occurred that were followed by recoveries and origination of new ecosystems. This significant transformation could be realised in numerous ways. The project aims to be a platform for the study of survival and recovery of the biosphere, and restructuring of global environments, following mass extinctions.

The project outlines are:

- (1) to study patterns of extinction/survivorship of organisms during the mass extinction events;
- (2) to analyse the evolutionary and ecological strategies that allowed clades and communities to survive and initiate subsequent biotic recoveries;
- (3) to study the structure of the deep-crisis ecosystem;
- (4) to elucidate the recovery initiation mechanisms;

- (5) to find the time, space and functional patterns of the recovery;
- (6) to refine the data and tools for this discipline;
- (7) to develop general models by means of comparison of individual global crises in Earth's history;
- (8) to apply these (predictive) models to better understanding the modern environmental and biodiversity crises.

This international project is headed by Douglas H. Erwin, Smithsonian Institution, Washington, D.C., and Erle G. Kauffman, University of Colorado, Boulder. Over sixty countries are involved in the project.

The meeting should bring together palaeobiologists, palaeontologists, biologists, ecologists, systems theorists, and other persons that are interested in the topic.

The conference is held under the auspices of the Geological Institute, Academy of Sciences, and is organised by:

Petr Cejchan & Jindrich Hladil

Geological Institute, Academy of Sciences

Rozvojova 135

CZ 165 02 Praha 6 Lysolaje

Czech Republic

Venue - The conference will be held at the new IKEM Conference Building, Videnska 800, Prague 4, Czech Republic.

Please, direct all your correspondence related to the conference to the Conference Manager:

Petra Hovorkova, Recoveries '97

Eurocongress Centre

Budejovicka 15

CZ 140 00 Praha 4

For conference update and details on the programme please consult: <http://www.gli.cas.cz/conf/recovery/recovery.htm> (with electronic pre-registration); e-mail: recovery@gli.cas.cz

GAC/MAC - The 1997 Joint Annual Meeting of the Geological Association of Canada and the Mineralogical Association of Canada will be held in Ottawa, Ontario from May 19-21, 1997. This years meeting is hosted by the Geological Survey of Canada with contributions from the Canadian Museum of Nature, Carleton University, Ottawa University, the Royal Society of Canada, and the Western Mining Corporation.

Of interest to the paleontological community is a special technical session entitled:

T14 - (Oral) Organism Response to Environmental Change: Documentation from the Recent and Fossil Record

Conveners: Tim Patterson and Eduard Reinhardt of Carleton University

Increasingly, various fossil groups are recognized as suitable for documenting the impact of anthropogenic agents on the environment. Such understanding requires detailed documentation of other, non-anthropogenically related changes in the older geological record. This session will introduce the utility of fossils in a variety of such applications. It will include research from both marine and nonmarine settings without restriction by taxonomic group or geological age.

Detailed information concerning the meeting can be found at the Ottawa '97 website: <http://www.emr.ca/~ottawa97/>

There are no abstract forms for Ottawa '97: submission must be by one of the following means:

1. Ottawa '97 web form (coming Nov/Dec 1996)
2. Ottawa '97 e-mail address (ottawa97@NRCan.gc.ca)
3. Regular mail diskette and hard copy
4. Regular mail hard copy only.

Watch for Updates on the Website. The Second Circular is due early March 1997.

Dr. R. Timothy Patterson - Associate Professor

Ottawa-Carleton Geoscience Center and Department of Earth Sciences - Carleton University - Ottawa, Ontario, K1S 5B6 CANADA - Telephone: 613-520-2600 ex 4425, FAX: 613-520-4490, e-mail: tpatters@ccs.carleton.ca

SCIENTIFIC COMMITTEE FOR ANTARCTIC RESEARCH

VII International Biology Symposium - Antarctic ecosystems: models for wider ecological understanding

The seventh SCAR International Biology Symposium will be held Monday 31st August to Friday 4th September 1998 at the University of Canterbury, Christchurch, New Zealand. The meeting will last for five days. A small number of workshops will be run in conjunction with the symposium. Preliminary suggestions include: algal taxonomy, field instrumentation technology, GIS data management, measurement of UV, fish physiology.

The Conference Organiser - VII SCAR Biology Symposium
Centre for Continuing Education - University of Canterbury
Private Bag 4800 - Christchurch - New Zealand

Phone: (+64 3) 3642645 Fax: (+64 3) 3642057 Email: scarbio@cont.canterbury.ac.nz

Website: http://www.scar.org/scar_meetings/biology.html

FURTHERMORE IN 1997

April 1-4: The Late Quaternary in the Eastern Mediterranean. Symposium sponsored by INQUA. Ankara, Turkey. Details: Gill Giles, Department of Geography, Loughborough University, Loughborough, LE11 3TU, England, UK. FAX: +44 1509 223930. E-mail: g.gilcs@lboro.ac.uk. See also http://info.lboro.ac.uk/departments/gy/INQUA_symposium/index.html

May 19-21: GAC-MAC Joint Annual Meeting Ottawa, Ontario

June 25-29: VIII International Conference on Harmful Algae. Vigo, Spain. Details: Beatriz Reguera, Conference Coordinator, VIII International Conference on Harmful Algae. Instituto Español de Oceanografía, Aptdo 1552 36280 Vigo, Spain.

October 20-23: Geological Society of America. Annual Meeting Salt Lake City, Utah, U.S.A. General chair. M. L. Allison, Utah Geological Survey. Details: GSA HQ, Box 9140, 3300 Penrose Place, Boulder, Colorado 80301, U.S.A. Tel: (303) 447-2020, X133, E-mail: meetings@geosociety.org

FURTHERMORE IN 1998

October 26-29: Geological Society of America. Annual Meeting. Toronto, Ontario. Details: GSA HQ, Box 9140, 3300 Penrose Place, Boulder, Colorado 80301, U.S.A. Tel: (303) 447-2020, X133, E-mail: meetings@geosociety.org

FURTHERMORE IN 1999

August 3-12: XV INQUA Congress.

Durban, South Africa. Theme: "The Environmental Background to Hominid Evolution in Africa". Details: Dr. D. M. Avery, Secretary-General, South African Museum, P.O. Box 61, Cape Town 8000, South Africa. Tel: +27-21-243330, FAX: +27-21-246716, E-mail: mavery@samuseum.ca.za

See also <http://www.geoscience.org.za/inqua/inqua.html>

October 25-28: Geological Society of America, Annual Meeting.
Denver, Colorado, U.S.A. Details: GSA HQ, Box 9140, 3300
Penrose Place, Boulder, Colorado 80301, U.S.A. Tel: (303) 447-
2020, X133, E-mail: meetings@geosociety.org



AASP Deadlines

April? 1997 -- Receipt of applications for AASP Student Scholarships. AASP Scholarships are available to all students of palynology in all countries. Students need not be AASP members. Winners announced the following month.



Thesis abstracts



The reproductive biology and extinction of the Walchiaceae (Late Palaeozoic conifer)

PhD of Rudolf Johannes Poort

(The reproductive biology and extinction of the Walchiaceae (Late Palaeozoic conifer) - LPP Contribution Series No. 4, LPP Foundation, Utrecht, 1996, ISBN 90-393-1334-2)
R.J. Poort - Laboratory of Palaeobotany and Palynology, Budapestlaan 4, 3584 CD Utrecht, The Netherlands



his year a century ago, the Japanese botanists Hirase and Ikeno published their classic notes on the discovery of zoidiogy in *Ginkgo biloba* and *Cycas revoluta*. Subsequently, fertilization through motile antherozoids released in a pollen chamber,

became generally viewed as a primitive condition within extant gymnosperms. This led to the belief that zoidiogy could have been widespread among Palaeozoic and Mesozoic gymnosperms.

Unfortunately, it is difficult to demonstrate either zoidiogy or siphonogamy through direct observations on fossil plant remains. Although pollen chambers are long since known to occur in ovules of extinct gymnosperms, both antherozoids and pollen tubes are unsuitable for fossilization. Even in those rare occasions that a pollen tube was found in exceptionally preserved material, its function can not be conclusively interpreted in terms of either zoidiogy or siphonogamy.

Yet, in the reconstruction of reproductive strategies among extinct gymnosperms, the study and functional interpretation of pollen characters have regularly played a prominent role. By remarkable coincidence, in the same year when zoidiogy was demonstrated in cycadophytes and *Ginkgo*, the French palaeobotanist Renault introduced the concept of prepollen. He considered the organization of prepollen to justify the probable production of motile antherozoids in Late Palaeozoic pteridosperms and cordaitaleans.

In the Glossary of Pollen and Spore Terminology (Punt et al., 1994), prepollen is currently defined as 'the microspores of certain extinct seed plants characterized by proximal apertures and presumed proximal germination, rather than the distal, equatorial or other typical apertures of seed plant pollen grains'. Because of the absence of a distal aperture indicative of pollen tube formation, prepollen differs from the two principal pollen categories that are morphologically and functionally recognized in extant gymnosperms: (1) pollen with a distal aperture for the outgrow of a pollen tube with an exclusively nutritive function; release of motile antherozoids not via preformed apertures but by wall decay (zoidiogy of cycadophytes, *Ginkgo*), and (2) pollen with a distal aperture for the outgrow of a pollen tube that also serves as a carrier for immotile gamete cells or nuclei (siphonogamy of all other gymnosperm taxa).

In the past decades, detailed morphological and ultrastructural analysis of fossil pollen, found in situ in polliniferous organs or in pollen chambers, have confirmed the presence of a prepollen condition in the Lyginopteridales and Medullosales (pteridosperms), as well as in some Cordaitales. The prepollen is widely taken as indirect evidence of zoidiogy in these categories of Late Palaeozoic gymnosperms. It is not yet generally appreciated, however, that also pollen of some Late Palaeozoic conifers could qualify as prepollen. This may be due to the fact that concepts of reproductive biology of extinct conifers are usually based on comparisons with extant counterparts.

The study and interpretation of Late Palaeozoic conifers has long been dominated by the monumental work of Florin (1938-1945). Notably the reconstructed organization of ovuliferous organs of the Walchiaceae (Lebachiaceae) formed a key element in phylogenetic considerations. However, Florin's concepts became challenged. In her monographic study of *Ortiseia*, a Late Permian representative of the Walchiaceae, Clement-Westerhof (1984) demonstrated that structures initially interpreted as the walchiaceous ovule by Florin, are in fact fertile scales. She recognized and reconstructed the real ovules; these are inverted and laterally attached to the fertile scale. Intriguingly, she found evidence of the presence of a pollen chamber in the ovules. Moreover, large and thick-walled in situ pollen grains were classified as prepollen. Florin considered walchiaceous pollen to be comparable with the saccate pollen as can be found in modern *Pinus*, thus suggesting siphonogamy. However, the pollen of *Ortiseia* is characterised by a distinctive proximal aperture, without any evidence of the additional presence of a thinning of the wall that could indicate the capacity to produce a distal pollen tube. Independently, Mapes and Rothwell (1984) arrived at similar conclusions for the structure of ovules and pollen of *Lebachia lockhardii*, a Late Palaeozoic conifer from North America.

As a sequel to the work of Clement-Westerhof, the present thesis is aimed to contribute to a better understanding of the reproductive biology of the Walchiaceae. Emphasis is given to (1) the reconstruction of ovules of Late Carboniferous/Early Permian representatives of the family, and (2) a confirmation of the prepollen condition of different types of walchiaceous pollen, through detailed morphological and ultrastructural analysis.

In addition, the extinction of the Walchiaceae is discussed in the light of the Permian-Triassic biotic crisis. Visscher et al. (1996) recently considered that, in Europe, this crisis resulted in mass-mortality and subsequent extinction among the dominant Late Permian conifer taxa. It may be hypothesised that *Ortiseia*, the youngest representative of the Walchiaceae, could exemplify this extinction. Megafossils of *Ortiseia* are relatively rare. However,

since the prepollen of the genus is known to correspond to the palynological species *Nuskoisporites dulhuntyi*, an analysis of the palynological record can significantly contribute to the understanding of the geographic and stratigraphic distribution patterns of *Ortiseia*, that are required to test this hypothesis.

In Chapter 1, the prepollen concept and its history is outlined. The concept has considerably changed in the past 100 year, but has remained strongly related to zoidiogy. The current definition of prepollen is based on the morphology of the pollen wall, but has a strong functional connotation. Notably ultrastructural analysis has confirmed the absence of wall differentiations that could be interpreted as apertures for the outgrow of a pollen tube. It is emphasized that, in addition to well-known examples in peridorsperms and cordaitaleans, a prepollen condition also occurred among Late Palaeozoic conifers.

Chapter 2 describes a conifer-dominated Late Carboniferous/Early Permian flora from a newly discovered locality in SW-Germany. Environment, mode of deposition and palaeoecology of the floral elements are briefly discussed. The most common remains belong to the conifer species, conventionally known as *Walchia hypnoides*. Apart from vegetative remains, also reproductive structures are present, enabling a new reconstruction of the ovuliferous cone. Because the species appears to differ in some fundamental respects from other species of *Walchia*, *W. hypnoides* is transferred to the newly established genus *Otovicia*. The diagnosis of the family Walchiaceae is emended in order to accommodate forms with more than a single inverted ovule per ovuliferous dwarf-shoot. Fluorescence microscopy reveals structural details of the ovules. The presence of pollen in the apical region of the nucellus could indicate the presence of a pollen chamber. Clusters of pollen at the tip of the nucellar beak suggest a pollination drop mechanism for the entry of pollen into the pollen chamber. The pollen grains correspond to the palynological form-genus *Potonieisporites*. They are considered to have a prepollen condition, and are morphologically adapted to wind transport. A model of the reproductive biology of *Otovicia* is proposed, emphasizing wind pollination and zoidiogy among walchiaceous genera.

Chapter 3 concentrates on a morphological and ultrastructural analysis of *Potonieisporites novicus*, the type species of the palynological form-genus *Potonieisporites*. *P. novicus* can be considered to represent *Otovicia* and other Late Carboniferous/Early Permian conifers, assignable to the Walchiaceae of the Euramerican floral province. The analysis falsifies earlier concepts of a monosaccate organization and the presence of a distal germinal area. The species is characterized by a monosaccoid sexine expansion, completely filled with an alveolate infrastructure. A proximal aperture is distinct, but there is no evidence of distal specializations indicative for the formation of a haustorial pollen tube. The species thus qualifies as prepollen. These characters are included in an emended diagnosis for the species. A restricted concept of an exclusively walchiaceous status for the form-genus *Potonieisporites* can not yet be proposed, mainly because of the lack of conclusive evidence on the botanical affinity and the morphological/ultrastructural organization of similar, but not necessarily identical, pollen from the Gondwana floral province.

Similarly, Chapter 4 describes the morphology and ultrastructure of *Nuskoisporites dulhuntyi*, the type species of the palynological form-genus *Nuskoisporites*. *N. dulhuntyi* represents species of *Ortiseia*, a well-described representative of the Walchiaceae, and a prominent component in the xerophilous Late Permian flora of the

Southern Alps. Again, a prepollen condition can be emphasized, since ultrastructural analysis verifies the absence a distal aperture. The prepollen is monosaccoid. An emended diagnosis is formulated. Confirmed occurrences of *N. dulhuntyi* remain restricted to the Upper Permian of western, central and southern Europe. First-occurrences are not earlier than Wordian times. Last-occurrences approximate the Permian-Triassic boundary and match world-wide evidence of dieback of arboreal vegetation in the terrestrial biosphere. The deduced extinction of *Ortiseia* exemplifies the effects of the Permian-Triassic biotic crisis on gymnosperm diversity in the European part of the Late Palaeozoic Euramerican floral realm.



Paleobotany and palynology of Neogene sediments from the high plain of Bogotá (Colombia) - Evolution of the Andean flora from a paleoecological perspective

Ph.D. Vincent M. Wijninga

(Ponsen and Looijen B.V., Wageningen; ISBN 90-900-9414-8; 1996. x + 374 pages, with 16 appendices in a separate envelope. US\$ 50 (including handling & postage). The 69 photoplates are also available on cd-rom (information and orders: wijninga@bio.uva.nl or fax: +31 20 5257662) Vincent M. Wijninga, Hugo de Vries-Laboratory, Dept. of Palynology and Paleo/Actuo-ecology, University of Amsterdam, Kruislaan 318, 1098 SM Amsterdam, The Netherlands



The thesis presents the history of neotropical vegetation and environment in the area of the high plain of Bogotá (2550 m alt., Cordillera Oriental, Colombia) during the Neogene. The aim of the study was to document the history and development of the montane Andean vegetation in relation to the final uplift of the Eastern Cordillera by means of pollen and plant macrofossil analysis. **Chapter 1** includes a historical overview of paleobotanical research in tropical South America, a geographical description of the study area, and the present vegetation in the Eastern Cordillera are given. In addition an overview of the geology of the study area, and lithostratigraphy and biostratigraphy of the Neogene-Quaternary sediment sequence of the study area are presented.

Chapter 2 discusses the results of a geochemical study, which was carried out on the fossil plant material from a selection of the studied sections of Neogene age. The objective of this study was to assess the chemical composition and the degree of decomposition of the neotropical plant material. The chemical composition of the fossil organic material was revealed by means of pyrolysis gas chromatography mass spectrometry. The chemical analyses were performed on total organic matter samples and on selected plant tissues (wood and cuticles). A chemical fingerprint of each deposit was obtained from the total organic matter samples. These fingerprints reflect primarily the type of depositional environment. The results of the analysis of the woods show that the preservation of organic matter in the sections studied is primarily controlled by the prevailing biotic and abiotic conditions during sediment deposition. Apparently, the factor time explains only a minor part of the differences in preservation of the fossil plant material from the sections studied.

Chapter 3 describes the paleovegetation and environment before the uplift of the study area had taken place. This phase is represented by the sediments of sections Salto de Tequendama I and II, which belong to the Tequendama Member of the Lower Tiltat Formation. Sediments of section Salto de Tequendama I

were deposited in a low energy river, those of section Salto de Tequendama II accumulated in a depression on the river floodplain. The pollen and macrofossils of section Salto de Tequendama I are suggestive of a tropical lowland floodplain forest. At present similar forests are found in northwestern Amazonia. The presence of montane pollen taxa, transported by river, indicate that mountains in the proximity of the deposition site were covered by *Podocarpus*-rich forest. Pollen and macrofossils from section Salto de Tequendama II are indicative of a swamp forest, dominated by the palm *Mauritia* and with representatives of Cyclanthaceae and Cyperaceae in the understorey, situated on the lowland floodplain. Paleovegetational characteristics suggest that sediment deposition occurred at approximately 700 ± 500 m elevation. Based on the lowland paleovegetation and the absence of pollen of *Hedyosmum* the sediments of sections Salto de Tequendama I and II belong to Biozone I. The presence of *Crassoretitriletes vanraadshooveni* (not redeposited) and scanty presence of Compositae is suggestive of a Middle? Miocene age for the sediments of both sections.

Chapters 4 and 5 describe the first stage in the uplift of the study area. The fossil plant assemblages of sections Río Frio 17 and Subachoque 39 consist predominantly of Andean and subandean pollen taxa associated with pollen and macrofossils of tropical lowland elements. Recorded montane taxa are, e.g. *Podocarpus*, *Hedyosmum*, *Ilex*, *Viburnum*, *Myrsine*, *Symplocos* and *Clethra*-type. The lowland forest taxa include, e.g. *Amanoa*, *Mauritia*, *Iriarteia*, *Sacoglottis*, *Humiriastrum* and *Vantanea*. The concurring presence of lowland and montane taxa is explained by assuming a relatively small area covered with lowland forest, whereas the area of the surrounding mountain slopes covered with Andean and subandean forest was relatively large. Sediment deposition is thought to have occurred at approximately 1000 ± 500 m altitude. Based on new palynological evidence the sediments of section Río Frio 17 belongs to Biozone IIA, instead of Biozone I. A volcanic ash layer intercalated this section was fission-track dated at 5.3 ± 1 Ma. The sediments of section Subachoque 39 belong to the same biostratigraphical zone as section Río Frio 17, but belongs to the younger Tibagota Member of the Lower Tilitá Formation.

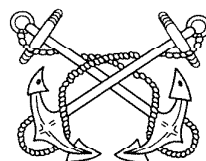
In **chapter 6** the fossil plant assemblage of peat section Facativá 13 is described. The assemblage represents a *Podocarpus* forest mire, which consisted of scattered *Podocarpus* trees accompanied by shrubs of Melastomataceae. Modern analogs of this forest are unknown in northern South America, although in podocarpaceous swamp forests are found in New Guinea. The forest surrounding the mire included taxa, such as *Myrsine*, *Weinmannia*, *Vallea*, Melastomataceae, *Alchornea*, *Ilex*, and *Hedyosmum*. The presence of the latter taxon and the absence of *Myrica* are indicative of Biozone IIB. The composition of the fossil plant assemblage suggests that sedimentation occurred at approximately 2000 ± 500 m elevation. Fission-track on zircon from an intercalated volcanic ash layer gave an age of 3.7 ± 0.5 Ma.

The paleoecological interpretation of the fossil plant assemblage of section Guasca 103 is presented in **chapter 7**. The fluvio-lacustrine sediments belong to the Guasca Member of the Upper Tilitá Formation. The recorded plant fossils are indicative of a forest near the present-day upper limit of the subandean vegetation belt, that is, 2200 ± 500 m elevation. The subandean forest shows marked fluctuations in its floristic composition. Several of the aforementioned taxa have adapted to disturbance. Alternation of paludal and aquatic environments suggest water level fluctuations. These dynamic conditions might be related to the initial stage in the formation of the sedimentary basin of Bogotá near the end of the Pliocene uplift. The presence of *Myrica* suggests that the sediments of section Guasca 103 belong to Biozone III. The Guasca sediments are estimated to be of Late Pliocene age.

Based on the palynological and paleobotanical evidence **chapter 8** provides a synthesis of the development of the Andean flora in relation to the final Pliocene uplift of the Eastern Cordillera. The change in forest composition in terms of phytogeographical origin of plant taxa during Neogene time is presented. The issue of explaining the current high plant diversity in the Amazon basin is addressed. The problem focuses on whether speciation or extinction process dominated among plants in the Amazonian lowland as a result of the climatic fluctuations during the Quaternary. Pollen type countings of Neogene pollen sections were compared with those from Late Quaternary pollen sections in order to evaluate the plant diversity in Neogene time.

The plant microfossils and macrofossils recorded in the studied Neogene sediments from the high plain of Bogotá are described and illustrated in the **appendix** of the thesis. The light-microscope and SEM photographs of the plant fossils are compiled in 69 plates that include 66 microfossil types (mainly pollen) and 226 plant macrofossil types (seeds, fruits, leaves and wood). Type-number and taxonomical indexes are included.

From the Pacific Shores



ODP COMES TO BRITISH COLUMBIA

A new interdisciplinary research project was recently launched, involving several subprojects that may be of interest to AASP members.

Multiple sediment cores spanning the last 12,000 years were recovered from Saanich Inlet near the city of Victoria on Vancouver Island, Canada, as part of the Ocean Drilling Program (ODP leg 169s). The ODP flagship "JOIDES Resolution", with its 200 foot high drill-tower provided a spectacular sight while coring for two days in mid August. The converted oil exploration vessel was operating in an unusual near-shore environment, coring in about 200 m of water instead of the thousands of meters in its typical ocean theatre of operations.

Supported mainly by a Collaborative Special Project grant from the Natural Sciences and Engineering Research Council of Canada, scientific analyses will be performed in the areas of geochemistry, sedimentology, paleoseismicity, microbiology and paleoecology. The paleoecology component will focus of questions of rates of change in marine productivity, using fish remains, foraminifera, diatoms, and dinoflagellates. For terrestrial environments along Saanich Inlet, the focus will be on vegetation dynamics (including fire history) and climatic changes, based largely on pollen and charcoal analyses. Pollen analyses will be conducted by Richard Hebda, Royal B.C. Museum, and Rolf Mathewes, Simon Fraser University, along with a graduate student and postdoctoral fellow.

The excitement generated by this project is a consequence of the special sedimentary conditions found at Saanich Inlet, which will allow for "Ultra-high resolution" of critical intervals of rapid environmental change. Sedimentation rates are rapid, accumulating up to 118 m of deposits during postglacial time, and about 80 m of the core is characterized by superbly preserved laminations, almost certainly annual varves. Much of the basin fill must have formed under anoxic conditions, preserving the laminae and a wealth of organic materials. Stage 1 of the pollen analysis will involve taking approximately 550 samples, one at about every 25 years, to produce a high-resolution pollen diagram for the reconstruction of vegetation history. Stage 2 will focus on the analysis of critical and controversial periods of environmental change, such as the Younger Dryas chronozone, the Pleistocene-Holocene boundary,

the very warm period centered around 9000 radiocarbon years BP, and others. Since the laminations are relatively thick (8-15 mm), it will be possible to sample annually and even sub-annually to provide an unmatched level of palynological detail for past periods of rapid environmental change.

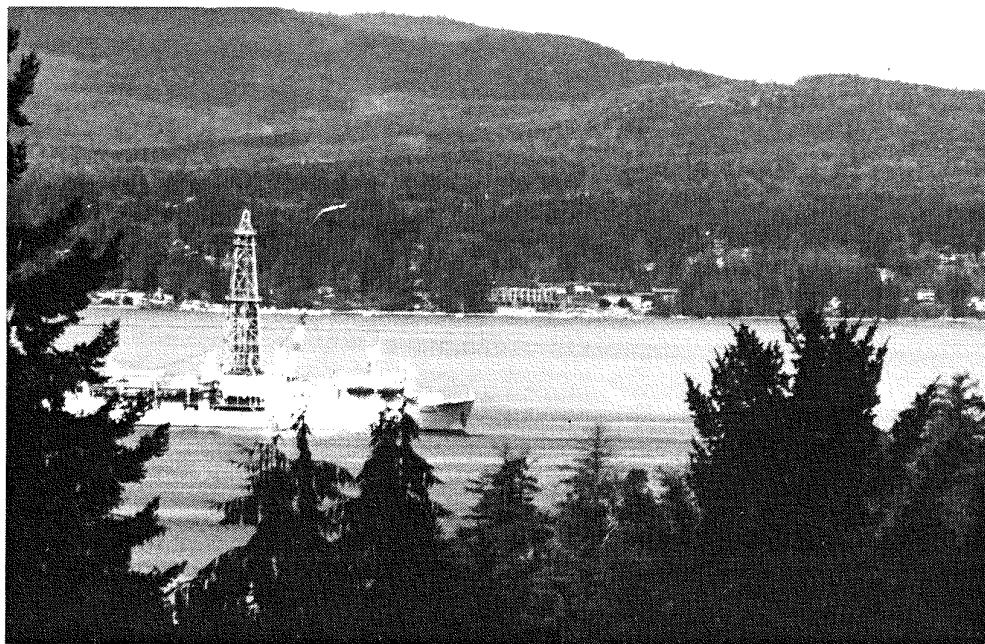


Photo: "Joides Resolution" in Saanich Inlet Coring Locality - R.W.Mathewes

When the results are all in, Saanich Inlet will join a select list of other near-shore anoxic basins such as the Santa Barbara Basin off California and Venezuela's Cariaco Basin. The data from these sites will be critical in understanding the dynamics of global climatic and oceanographic changes in the past, and will help us in preparing for the future.

For further information (including pictures) consult the ScienceWeb at (<http://scienceweb.dao.nrc.ca/can/field/ocean/jrodp/jrvisit.html>).



Dinium-Alpha: A chronostratigraphical range, morphology and photomicrography database builder for dinoflagellate cyst taxa

You are looking in your microscope at slides you just received from the lab, - hot-shot samples. The boss gave you 10 minutes to date them. You quickly realize that you are somewhere in the Hauterivian, or, well, perhaps it could be Berriasian. You used to be very good in the Early Cretaceous, but that was five years ago. You've been working in the Triassic ever since.

"We are somewhere in the Early Cretaceous", you say, carefully weighing each word, trying to sound confident. "Early Cretaceous!", your boss roars. "Early Cretaceous! Do you want me to tell them they're in the Early Cretaceous? We need ammonite zones, boy! I want to hear things like *marginatus*, or *angulicostata*, ... don't give me that Early Cretaceous nonsense! You have been in biostratigraphy for 15 years, and all you can say is Early Cretaceous?"

Your hands are so clammy that they slip on the focus knob.

"Well...", your voice trembles, "Sue usually takes the Cretaceous stuff. I've been lower down the column for a long time now, and I ..."

"Sue's not here today, so you'll have to manage this yourself!"

You try to concentrate. The material is rich and well preserved. If only it wasn't for all those spiny things, - oh how you hate those chorate cysts of Davey, you could never remember which was which, and that DGU paper is never on the shelf where it belongs.

But wait! You remember that Sue has been loading Cretaceous dinoflagellate morphologies and ranges into Dinium-Alpha during the last few months. Of course!

"Excuse me, will you please move aside, I need to use the computer for a couple of minutes", you say as you resolutely slide your chair toward the screen.

"A couple of minutes is the time you have remaining in my employment, if you don't come up with a reliable date pretty fast", your boss sneers. "You

don't seem to be aware of the fact that I have a rig full of angry Texans waiting for clearance to set casing, and now you intend to play a computer game?"

He doesn't scare you now. Your confidence has returned. You swiftly double-click the Dinium-Alpha start-up icon, and wait as the status bar fills with color during program loading.

"Actually, Sue *is* with us today", you tell your boss. "She has put her accumulated Cretaceous morphological knowledge into this database front-end application."

In your peripheral vision, you observe your boss heading over to get a closer look at the fancy morphology buttons and scrollable time scales coming into view on the screen.

"It's called Dinium-Alpha. It enables the user to store and retrieve morphological characters, chronostratigraphical ranges and digital images of dinocyst taxa." You lean back, realizing that you now have full control of the situation.

"I have a taxon in this sample which has no horns." You click the icon entitled *horns absent*. "It is not dorso-ventrally compressed, and its breadth is equal to its length." You click the icon buttons for *uncompressed dorso-ventrally* and *length/width ratio = 1*. "It has atypical 4-paraplate apical archeopyle with a contiguous operculum." You select the archeopyle panel and click *apical* in the drop-down list box. Paratabulation diagrams showing various apical archeopyle types appear on the panel. You select the appropriate diagram, and the archeopyle opens up, clearly showing a 4-paraplate archeopyle with a contiguous operculum. "Whenever I want, I can press the search button to retrieve a list of all taxa having these characters, - but that would be hundreds of taxa. I want to be more precise. I'll narrow down the possibilities by selecting more characters," you say while you check your watch...you have sixty seconds left.

You select the cyst wall panel. Several categories of new panels appear; surface, cavation, processes, septa, paratabulation.

"The taxon I'm looking for has annulate process complexes", you select the icon button for this character. "The processes themselves

are solid, tapering, vacuolate, taeniate, medially branching and have small distal bifurcations." You click on the icons for each of these process characters. "Oh yes, I almost forgot, the cyst is acavate and the periphragm is smooth to scabrate." You click the icons for those criteria too.

You select the chronostratigraphy panel and scroll the two time scales down to the Early Cretaceous.

"I can search for all taxa having these morphological characters, regardless of their chronostratigraphical range, - but I want to be even more selective," you say as you place the interval selection pointers on uppermost Hauterivian and base Ryazanian. "I will limit the search to taxa having ranges entirely within this interval." Finally, you press the search button. Dinium-Alpha thinks for only a quarter of a second, and shows the result, - one taxon found! *Systematophora palmula*! A photomicrograph of the species appears, with comments, specimen age, photo credits, etc.

"Sue has stored six images of this taxon in the Dinium-Alpha database, together with her comments about each image, as well as location info and specimen age", you say as you look at your boss. His mouth is wide open and his eyes are watery. "You can clearly see that this is the same species which I have in my microscope", you continue. "To view the range of this taxon, I simply press the *show range* button."

A time scale panel with Boreal ammonite zones appears on the screen. Last appearance and first appearance pointers indicate the chronostratigraphical range of *Systematophora palmula*.

"*Systematophora palmula* has a first appearance in the albidum zone, and a last appearance in the callidiscus zone. From this drop-down listbox, I can examine its range in other geographical areas, for example North Sea, Barents Sea, North America, etc., - whatever Sue has put into the database. The macrofossil zones change accordingly."

"Amazing!", your boss whispers.

"You see these two buttons here, with the DinoSys emblem? If I press the one that says *show description*, the original description from the DinoSys database appears on the screen. If I press the one that says *DinoSys images*, then additional images of this taxon from the DinoSys database appear on the screen.

"What is DinoSys?", your boss politely asks.

"DinoSys is a comprehensive database of taxonomic descriptions and images developed by our friends at the Laboratory of Palaeobotany and Palynology, University of Utrecht. At present, it contains almost eight thousand images, many of which are holotype and paratype specimens."

"I see. Very impressive."

"Now look, with the occurrence of *Systematophora palmula*, I know we are somewhere in the Valanginian or the uppermost Ryazanian. But I want to be more accurate. Just to see what happens, I'll reset all morphological criteria and search for taxa on the basis of chronostratigraphical parameters only. By clicking this button here, I can search for all taxa having extinctions in the interval between the callidiscus zone and the albidum zone. See? I get 20 taxa."

You browse through the taxa with the arrow keys, as images simultaneously appear on the screen. "Right. Here it is, - *Batioladinium pomum*. It dies out at the top of the albidum zone in the North Sea, where our impatient driller is waiting. I have at least 10 specimens of this species in my hot-shot samples. That means our samples are in the uppermost Ryazanian, - the albidum zone to be precise. That is the time period when *Systematophora palmula* and *Batioladinium pomum* occur together", you say as you look your boss right in the eye.

"Thank you", he says with a smile. "Thank you", he says again, laughing. "You know that little cabin I have up in the mountains, - the one with 10 bedrooms, sauna, cabin cruiser on the lake and all

that? You can stay there next week. Take next week off. Bring your family and relax."

"Thank you, sir!"

"Don't mention it", he replies. "Oh, when you get back, you'll have a promotion waiting for you, - Senior Palynologist."

"Gee! But what about Sue?"

"She's now the new Director of Exploration."

"Wow..."



Dinium-Alpha is a database front end application which runs under Microsoft Windows 3.11 and Windows 95/NT. Dinium-Alpha's primary objective is twofold: 1) to provide the user with a palynologically intuitive graphical interface for storing and retrieving morphological criteria, stratigraphical ranges and digital images of cyst taxa; and 2) to function as an identification key by searching for cyst taxa on the basis of one or more user-selectable morphological criteria in combination with chronostratigraphical range parameters.

Dinium-Alpha is interfaced with portions of DinoSys, a comprehensive taxonomy and image database application developed by the Laboratory of Palaeobotany and Palynology, University of Utrecht. This enables the user to retrieve descriptions and images from the DinoSys database through Dinium-Alpha's morphological and chronostratigraphical range queries.

Robert W. Williams - Norwegian Petroleum Directorate
P.B. 600, N-4001 Stavanger, Norway
email: williams@online.no; vox: (47) 51 87 64 72



The Paleonet



International Palaeontological Association - Endangered fossil sites.

Fossil sites of great importance are endangered around the world for numerous reasons. Some are being exploited by collectors and merchants, others are being used as waste dumps and still others are being obliterated by the encroachment of man and his activities.

Little can be done to mitigate the problem if the endangered fossil sites are not made known to the public at large. Knowledge is power and until we as paleontologists have a full listing of those endangered sites, we can take very little coordinated action to ameliorate the problem. The International Palaeontological Association (IUGS) wishes to assemble a catalogue of worldwide endangered fossil sites, including specific information about their location, conditions, problems, their potential/actual loss to science and mankind and other pertinent information. - Richard Lane, D. L. Bruton - IPA - Address: attn. Verda M. Kenworthy Amoco Corporation, P. O. Box 3092, Room 784W3, Houston TX 77253 Fax ++1-713-3667416



Positions

Jobs

Geochem Group Ltd. require a senior laboratory technician based in Aberdeen.

In order to meet the increased demand for our onshore and offshore services we are seeking a Palynological/Micropalaeontological Preparer for our laboratory operation in Aberdeen.

Suitable applicants should have a good educational background in a science discipline, preferably in the Earth Sciences. Experience preparing slide material would be an advantage. Good organisational, communication skills and previous laboratory

experience is essential. As offshore working will be a key feature of this position, applicants must be medically fit. Interested applicants should telephone Linda Neville-Jackson in the first instance for an application form on (01244)-671121.



Curator of invertebrate palaeontology - Applications are invited for the post of Curator of Invertebrate Palaeontology in the Department of Geology and Zoology, working at the Royal Museum of Scotland, Chambers Street, Edinburgh.

The successful candidate will be responsible for the curation and documentation of fossil invertebrate collections, with subsidiary responsibility for fossil plants; conducting scholarly research for publication; planning exhibitions; promoting accessibility to and development of collections.

You should normally have a good Honours degree in Geology; and a higher degree in palaeontology; proven ability in research and publication; and be computer literate. A current driving licence is essential and knowledge of a foreign language desirable.

Further details and an application form may be obtained by writing to Mrs. M. Campbell, Personnel Office, Royal Museum of Scotland, Chambers Street, Edinburgh EH1 1JF

The closing date for applications is 6 December 1996.



Two faculty positions in marine environmental biology at the university of southern California

(1) Wrigley endowed chair - For this tenured full professorship, we seek an active researcher with a distinguished record in marine environmental biology. The successful candidate will be expected to maintain a quality research program as well as participate in our undergraduate and graduate educational program and play an influential role in the Wrigley Institute. Ideally, this individual would have a broad, global perspective, and a vision for the role of their science in society.

(2) Assistant professor, tenure track - The specific area of research is open with respect to approach or taxa, with special interest in the following areas: trophic interactions, biochemical and physiological adaptations, systems ecology, biodiversity studied with molecular biological approaches, biomechanics and functional morphology, genetics (quantitative, population, or molecular).

Teaching on both the USC campus and the Catalina facility at the undergraduate and graduate levels is expected.

Applicants should send a resume, a cover letter describing their teaching and research interests, up to three recent publications, and the names, addresses, telephone/FAX numbers, and e-mail addresses of at least 3 references to:

Chair, Wrigley Search Committee - Department of Biological Sciences - University of Southern California - Los Angeles, CA 90089-0371

Applications will be considered beginning 1 December 1996, and will be accepted until the positions are filled. For more information on the Institute and these positions, see:

<http://www.usc.edu/dept/LAS/WIES/index.html>



Websites

You may be interested in visiting the Quaternary Environments Network web page, which has preliminary vegetation maps and a literature review for the world since the Last Glacial Maximum. The idea is to continually update the maps and the review with using comments sent in by palaeoecologists from around the world. Set the controls for 20,000 B.C. !! - Jonathan Adams
<http://www.soton.ac.uk/~tjms/adams1.html>

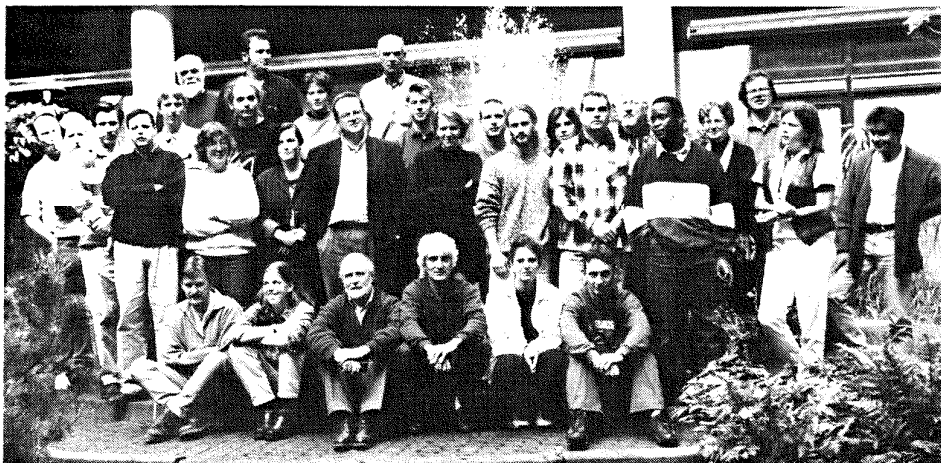
On your next trip through cyberspace be sure and stop by the Hooper Virtual Paleontological Museum:

<http://superior.carleton.ca/~tpatters/Museum/hvpmdoor.html>

The Palaeontological Association web pages have been updated. New items include the latest edition of the 'Palaeontology Newsletter' (Number 32; not yet available from any other source!) which contains the usual exciting stuff: a series of articles responding to what appear to have been somewhat controversial 'palaeo-comments' in the last issue (the use of specimens in private collections; procedures in ichnotaxonomy), details of Association awards, and announcement of the the contents of Palaeontology 39 part 4. It is also linked to the programme and abstracts of the Annual Meeting next month. All at the usual url's:

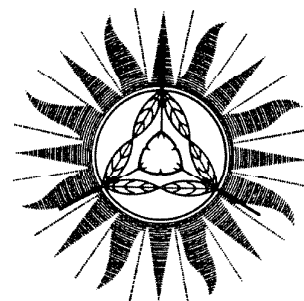
<http://www.nhm.ac.uk/paleonet/PalAss/PalAss.html>

<http://www.ucmp.berkeley.edu/Paleonet/PalAss/PalAss.html>



Something about Utrecht - October 1996

Inhabitants of the Laboratory of Palaeobotany and Palynology gathered. AASP newsletter editor far left. Something more in 1997.



AASP MEMBERSHIP APPLICATION AND DUES NOTICE

Dues may be paid up to three years in advance. Overseas AASP Members (Individual or Institutional) who would like to receive their AASP Newsletter and Palynology by air mail, rather than book rate surface mail, need to include the applicable postage surcharge (noted below). Credit card users must pay a \$1.00 U.S. surcharge per transaction.

| Dues | | Enclosed |
|--|-----------------------|----------|
| Individual dues: | \$30.00 U.S. per year | \$ _____ |
| Institutional dues: | \$40.00 U.S. per year | \$ _____ |
| Air mail surcharge (increased for 1995 and beyond) | | \$ _____ |
| Europe & South America: | \$12.00 U.S. per year | \$ _____ |
| Africa, Asia & Australia: | \$15.00 U.S. per year | \$ _____ |
| Credit card surcharge (\$1.00 per transaction) | | \$ _____ |
| Contribution to the AASP Student Scholarship fund | | \$ _____ |
| TOTAL ENCLOSED (IN U.S. FUNDS) | | \$ _____ |

Credit card payments (ALL information must be completed)

Mastercard ☐ Visa ☐

Credit card number: _____

Signature: _____ Card expiration date: _____

Send dues, surcharges (if applicable) and Student Scholarship contributions, with this form, to:

Dr. David T. Pocknall, AASP Secretary-Treasurer
Amoco Production Company
P.O. Box 3092
Houston, Texas 77253 U.S.A.

Be sure your name is on your check or international money order. Your cancelled check is your receipt. If you need a written receipt, advise the Secretary-Treasurer when you pay your dues. All drafts must be payable through a U.S. based bank.

Name: _____

Address: _____

City & State: _____

Country: _____ Zip or Postal Code: _____

Membership Application and Change of Address

New member: ☐ Change of Address: ☐

Please type or clearly print information. Date: _____

Name (First, Middle, Last): _____

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

Nature of work (graduate student, exploration stratigrapher, etc.)

Send along with your remittance to Dr David T. Pocknall at the above address.

