

AASP- THE PALYNOLOGICAL SOCIETY



Cnidosculus texana
by Gretchen Jones



NEWSLETTER



June 2012
Volume 45, Number 2



A.A.S.P. NEWSLETTER

Published Quarterly by AASP - The Palynological Society

June 2012
Volume 45, Number 2

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A.A.S.P.

The Palynological Society

The American Association of Stratigraphic Palynologists, Inc. - AASP-The Palynological Society - was established in 1967 by a group of 31 founding members to promote the science of palynology. Today AASP has a world-wide membership of about 800 and is run by an executive comprising an elected Board of Directors and subsidiary boards and committees. AASP welcomes new members.

The AASP Foundation publishes the journal *Palynology* (biannually), the *AASP Newsletter* (quarterly), and the *AASP Contributions Series* (mostly monographs, issued irregularly), as well as several books and miscellaneous items. AASP organises an Annual Meeting which usually includes a field trip, a business luncheon, social events, and technical sessions where research results are presented on all aspects of palynology.

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Sophie Warny, Editor

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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," new websites and information about job openings in the industry. Every effort will be made to publish all information received from our membership. Contributions which include photographs should be submitted two weeks before the deadline. **Deadline for submission for the next issue of the newsletter is August 15.** All information should be sent by email. If possible, please illustrate your contribution with art, line drawings, eye-catching logos, black & white photos, colour photos, etc. **We DO look forward to contributions from our membership.**

A message from our president

By : Francisca Oboh-Ikuenobe

Our newly designed website went live in mid-May! This has been one of the main accomplishments of the Board this year. Members worked closely with Arts eVenture, Inc. to create a website that is simple and very easy to navigate. The reception has been overwhelmingly positive. The Webmaster will find users' feedbacks useful in fixing possible glitches on the website in the coming months.

Jen O'Keefe and Cortland Eble hosted the midyear board meeting at the University of Kentucky in Lexington on April 13-14. Board members toured the facilities to be used for the 45th annual meeting on July 21-25 being held jointly with the CIMP (Commission Internationale de la Microflore du Paléozoïque). The Board was very impressed with the first-class facilities, accommodations, field trips and events planned for the meeting. A CIMP symposium on Devonian-Carboniferous palynology in honor of Geoff Clayton and Ken Higgs is also planned. Abstracts will be accepted until June 15.

Voting for the 2012-2013 Board opened on May 15 and will close on July 1. Members can either vote online using Ballot-Bin, or by paper ballots requested from the AASP Secretary.

This past March I spent two weeks in Egypt as a Fulbright Roster Scholar. The picture below shows some faculty and Petroleum Geology undergraduate students listening to my lecture. My host was another palynologist and AASP member, Mohamed Ismail Ibrahim (see inset above), the Dean of Science at Alexandria University. We convened the 2nd Workshop on "Applications of Palynology with Special Emphasis on Oil and Gas Exploration" on March 18-20, which was

attended by about 40-50 participants. My duties at Alexandria also included an external evaluation of the Petroleum Geology curriculum, presenting a lecture on the applications of palynology to undergraduates in the Department of Geology, and a lecture on Quaternary climate change to graduate students in the Environmental Science Department. I received an invitation from another AASP member, Salah El Beialy, Head of the Geology Department at Mansoura University, to visit the university, which is located in the beautiful Nile Delta. I had the privilege to present the departmental seminar during my one-day visit. It was a pleasure to meet and discuss with several students training as palynologists.

The timing of this year's annual meeting has made this my last newsletter column as President. Ian Harding will take over as President of the new Board during the annual meeting. It has been an incredible experience to work with dedicated Board of Directors, standing and ad-hoc committee members, AASP Foundation Officers and a host of volunteers who work behind the scenes to take care of our association's affairs. We can all contribute to AASP's success by recruiting new members and spreading the word about palynology in our communities. Thank you all for your support during the past year.



Palynology Managing Editor's report

Palynology Volume 36, Part 1 was published in this month, June 2012, and features a very attractive light blue front cover with a SEM photomicrograph of the acritarch *Stelliferidium* sp. from the Early Ordovician of Algeria which was supplied by Marco Vecoli (Lille, France). This part includes nine articles plus a corrigendum and comprises 152 pages in total. A full listing of the papers in this issue is given below. All members should receive their copies of this part during June; we trust that the distribution problems that beset Volume 35, Part 2 do not reoccur! A

Supplement to Volume 36 was also published in June 2012. This is a special part of *Palynology* in honour of the late Douglas J. Nichols, and was guest edited by David T. Pocknall and Thomas D. Demchuk. This part is comprised of 10 papers on topics closely related to the Doug's research interests, i.e. Cretaceous and Paleogene palynology; the papers are listed below. This special issue will be included in the mailing of Volume 36 Part 1 at no extra cost. I have recently finalised the content for *Palynology* Volume 36 Part 2 which will be paper-published in December 2012. It will include ten papers, which are listed below, and will run to 148 pages. This means that, as of December 2012, the society will have paper-published 29 papers and represents a truly prodigious effort.

The finalisation of Volume 36 Part 2 means of course that Volume 37 Part 1 (June 2013) is being filled as we speak. Indeed, one paper (Srivastava, S.K. and Braman, D.R. The palynostratigraphy of the Edmonton Group (Upper Cretaceous) of Alberta, Canada. 27 p.) has already been allocated to this issue. Authors should not be concerned about this situation in any way because all papers are formally published online via the iFirst system as soon as the revised manuscript has been accepted. Our page budget will also increase from 300 to 350 pages per annum in 2013 so any online publication backlog should soon be cleared. Manuscript submission rates continue to be healthy and we have a good number of papers which are at various stages of review and production.

If you have any questions regarding the online manuscript submission system for *Palynology*, please contact Daniel Jones at Taylor and Francis (email: Daniel.Jones@tandf.co.uk), copying me in. If you need to speak to Daniel direct, his office telephone number is +44 (0)20337 73602.

AASP Contributions Series

During 2012 the AASP Foundation will be publishing two *Contributions Series* numbers. Number 45 is on Indian palynology and Bob Clarke has just finished this one, which will be available online very soon. The other one is No. 46 and is entitled *A compilation and review of the literature on Triassic, Jurassic, and earliest Cretaceous dinoflagellate cysts* by J.B. Riding. It has been typeset and should be printed during June 2012.

James B. Riding
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June 2012

Papers published in *Palynology* Volume 36, Part 1 (June 2012)

- 1 de las Mercedes Sosa, M., Panseri, A.F. and Salgado, C.R. Pollen morphology of eight species of *Stemodia* (Plantaginaceae) from South America. p. 1-9.
- 2 Verhoeven, K. and Louwye, S. *Selenopemphix islandensis* sp. nov.: a new organic-walled dinoflagellate cyst from the Lower Pliocene Tjörnes beds, northern Iceland. p. 10-25.
- 3 Pound, M.J., Riding, J.B., Donders, T.H. and Daskova, J. The palynostratigraphy of the Brassington Formation (Upper Miocene) of the southern Pennines, central England. p. 26-37.
- 4 Soliman, A., Ćorić, S., Head, M.J., Piller, W.E. and El Beialy, S.Y. Lower and Middle Miocene biostratigraphy, Gulf of Suez, Egypt based on dinoflagellate cysts and calcareous nannofossils. p. 38-79.
- 5 Jones, G.D. and McCurry, H. Differentiating pollen from four species of *Gossypium*. p. 80-85.
- 6 Jones, G.D. Pollen extraction from insects. p. 86-109.
- 7 Slimani, H. and Louwye, S. New junior synonyms of the Late Cretaceous dinoflagellate cysts *Membranigonyaulax wilsonii* Slimani 1994 and *Turnhosphaera hypoflata* (Yun 1981) Slimani 1994. p. 110-115.
- 8 O'Keefe, J.M.K. and Elbe, C.F. A comparison of HF-based and non-HF-based palynology processing techniques in clay-rich lignites from the Claiborne Group, upper Mississippi Embayment, United States. p. 116-130.
- 9 Leopold, E.B., Birkebak, J., Reinink-Smith, L., Jayachandar, A.P., Narváez, P. and Zaborac-Reed, S. Pollen morphology of the three subgenera of *Alnus*. p. 131-151.
- 10 CORRIGENDUM. Jan, I.U. and Stephenson, M.H. Palynology and correlation of the Upper Pennsylvanian Tobra Formation from Zaluch Nala, Salt Range, Pakistan. *Palynology*,

Vol. 35, No. 2, December 2011, pp. 212-225.

Papers published in *Palynology* Volume 36, Supplement 1 (June 2012)

***Special Issue in Honor of Douglas J. Nichols*
Edited by David T. Pocknall and Thomas D. Demchuk**

- 1 Pocknall, D.T., Fleming, R.F., Cushman, R.A. and Demchuk, T.D. A tribute to Douglas James Nichols, palynologist, 1942-2010. p.1-7.
- 2 Braman, D.R. and Sweet, A.R. Biostratigraphically useful Late Cretaceous-Paleocene terrestrial palynomorphs from the Canadian Western Interior Sedimentary Basin. p. 8-35.
- 3 Bercovici, A., Vajda, V., Pearson, D., Villanueva-Amadoz, U. and Kline, D. Palynostratigraphy of John's Nose, a new Cretaceous-Paleogene boundary section in southwestern North Dakota, USA. p. 36-47.
- 4 Suhr Willumsen, P. Three new species of dinoflagellate cyst from Cretaceous-Paleogene (K-Pg) boundary sections at mid-Waipara River and Fairfield Quarry, South Island, New Zealand. p. 48-62.
- 5 Oboh-Ikuenobe, F.E., Spencer, M.K., Campbell, C.E. and Haselwander, R.D. A portrait of Late Maastrichtian and Paleocene palynoflora and paleoenvironment in the northern Mississippi Embayment, southeastern Missouri. p. 63-79.
- 6 Edwards, L.E. Dinocyst taphonomy, impact craters, cyst ghosts and the Paleocene-Eocene thermal maximum (PETM). p. 80-95.
- 7 Rodríguez-Forero, G., Oboh-Ikuenobe, F.E., Jaramillo-Munoz, C., Rueda-Serrano, M.J. and Cadena-Rueda, E. Palynology of the Eocene Esmeraldas Formation, Middle Magdalena Valley Basin, Colombia. p. 96-111.
- 8 Garzon, S., Warny, S. and Bart, P.J. A palynological and sequence-stratigraphic study of Santonian-Maastrichtian strata from the upper



Magdalena Valley basin in central Colombia. p. 112-133.

9 Pocknall, D.T. and Jarzen, D.M. *Grimsdalea magnaclavata* Germeraad, Hopping & Muller: an enigmatic pollen type from the Neogene of northern South America. p. 134-143.

10 Batten, D.J. Taxonomic implications of exospore structure in selected Mesozoic lycopsid megaspores. p. 144-160.

Papers to be published in *Palynology* Volume 36, Part 2 (December 2012)

1 Jones, G.D. and Allen, K.C. Using *Amaranthus palmeri* pollen to mark captured tarnished plant bugs. 8 p.

2 Musotto, L.L., Bianchinotti, M.V. and Borromei, A.M. Pollen and fungal remains as environmental indicators in surface sediments of Isla Grande de Tierra del Fuego, southernmost Patagonia. 18 p.

3 Mays, C.M. and Stilwell, J.D. Judging an acritarch by its cover: the taxonomic implications of *Introvertocystis rangiaotea* gen. et sp. nov. from the Late Cretaceous (Cenomanian-Turonian) of the Chatham Islands, New Zealand. 11 p.

4 Eisawi, A.A.M., Ibrahim, A.B., Rahim,

O.B.A. and Schrank, E. Palynozonation of the Cretaceous to Lower Palaeogene strata of the Muglad Basin, Sudan. 17 p.

5 Bryant, V.M., Kampbell, S.M. and Hall, J.L. Tobacco pollen: archaeological and forensic applications. 16 p.

6 Riding, J.B., Pound, M.J., Hill, T.C.B., Stukins, S. and Feist-Burkhardt, S. The John Williams Index of Palaeopalynology. 10 p.

7 Warny, S., Jarzen, D.M., Evans, A., Hesp, P. and Bart, P. Environmental significance of abundant and diverse hornwort spores in a potential submerged Paleoindian site in the Gulf of Mexico. 19 p.

8 Lattar, E., Pire, S., Avanza, M.M. and Ferrucci, M.S. Pollen analysis in some species of Linaceae-Linoideae from Argentina. 10 p.

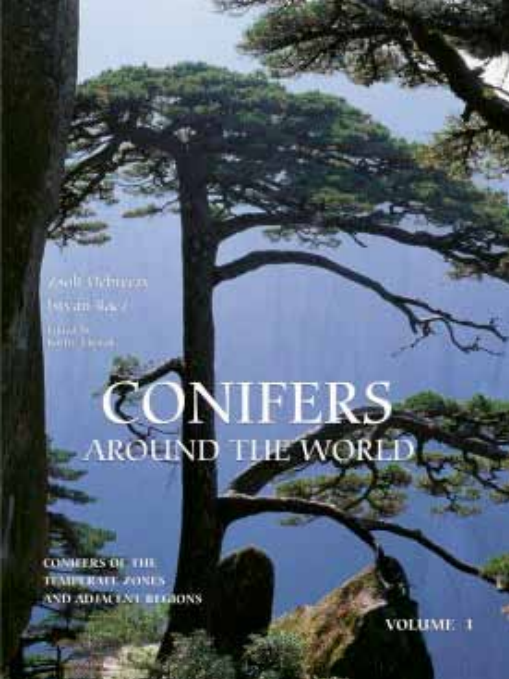
9 di Pasquo, M.M. and Grader, G.W. The palynology of the Lower Permian (Asselian-?Artinskian) Copacabana Formation of Apillapampa, Cochabamba, Bolivia. 14 p.

10 Galloway, J.M., Sweet, A.R., Pugh, A., Schröder-Adams, C.J., Swindles, G.T., Haggart, J.W. and Embry, A.F. Correlating middle Cretaceous palynological records from the Canadian High Arctic based on sections from the Sverdrup Basin and the Eclipse Trough. 25 p.

AASP MEMBER REQUEST!

Diana Lozano is looking for a copy of the Jansonius cards. If you have a copy and are willing to share this resource as a pdf or to help duplicate it, please contact:

Diana Ochoa Lozano
Palynologist - Geologist
Universidad de Caldas, Colombia
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Contents

Write a review

"Conifers Around the World" presents 541 taxa of conifers of 56 genera, including several that are new to science.

This book is the outcome of an ambitious 30-year project to search out and document all the conifers in the world's temperate zones and their adjacent regions--if possible in their most pristine natural habitats. The authors spent almost 2000 days in the field on the trail of conifers. They were able to visit and document the world's most inaccessible conifer taxa and to include the accompanying flora and vegetation in their documentation. They compiled a collection of 340,000 photographs representing thousands of taxa and backed with precise documentation.

The two volumes contain:

- An in-depth, richly illustrated 86-page introduction to conifers and the regions to which they are native.
- Species plates, arranged geographically into 11 regions, each containing three to five detail photos that highlight the species' most characteristic features and one image showing the tree(s) growing in the wild. A brief text accompanying each plate provides essential descriptive and historical information. (The Appendix in Volume 2 contains images and very short descriptions of 28 additional conifer taxa.)
- 175 habitat photographs showing the most picturesque conifer habitats on five continents.
- A unique "Bark Gallery" containing 646 color photographs taken in the wild.
- a 44-page chapter on the 7 conifer families and 56 genera discussed in the book, containing over 1200 detail drawings including a 6-page graphic essay of the pollen cones of each genus.
- 474 distribution maps that provide a visual image of the natural range of each species discussed.

"Conifers Around the World" will appeal to a wide variety of readers, from scholars to armchair travelers. The book's unique organization presents the species by region, offering a realistic picture of their worldwide distribution. Starting in Europe, the reader is invited to follow the conifers through Asia Minor and North Africa to China and Japan, then to the Americas (explored from west to east and then south), and finally to Tasmania and New Zealand. By presenting, for example, all the Southeast Asian conifers consecutively on 150 pages, their whole ecological range is brought together as never before. One can, as it were, audition a region's trees in the wild, and see how great age and the forces of nature can vary the appearance of even well known species.

**A NEW BOOK
OF POTENTIAL
INTEREST TO
AASP MEMBERS**

CONGRATULATIONS TO THE TWO 2012 AASP STUDENT SCHOLARSHIP RECIPIENTS



Willemijn Quaijtaal (willemijn.quaijtaal@ugent.be), Ghent University, Belgium.

I started my BSc in Biology at the Radboud University, Nijmegen, the Netherlands with a focus on something totally different from palynology: animal ecology and plant biotechnology. Then I met a biogeology student and I got so enthusiastic about this research field I decided to take the plunge and started an MSc in Biogeology at Utrecht University, the Netherlands. Under supervision of Prof. dr. Henk Brinkhuis I worked on a research project dealing with dinoflagellate cysts and biogeochemistry from the Eocene-Oligocene transition at St. Stephens Quarry in Alabama, USA. Later on, I worked on the palynology of the Quaternary of the Mozambique Channel, East Africa, a project supervised by dr. Francesca Sangiorgi. During this project, I was a scientific crew member of INATEX-GEO cruise (2009).

In October 2011 I started my PhD research at Ghent University, Belgium under the supervision of Prof. dr. Stephen Louwye, Prof. dr. Stefan Schouten (NIOZ, the Netherlands) and dr. Timme Donders (TNO, the Netherlands).

The research deals with the palynology and biogeochemistry of the Middle Miocene, and we aim towards a high-resolution reconstruction of Middle Miocene climatic variations in the Atlantic realm, the so-called Mi-events. These cooling events had a drastic impact on marine primary productivity and terrestrial ecosystems. The elucidation of the tempo and mode of these events is a first goal. Furthermore, we will study the behavior of the Gulf Stream in relation to Western Europe's climate during Middle Miocene times.

Terrestrial and marine environments from the eastern and western side of the Atlantic Ocean will be studied in order to determine whether these records are in or out of phase. The study material comprises dinoflagellate cysts, acritarchs, pollen and biogeochemistry (TEX86 and the UK'37) from a core from the Porcupine Basin, offshore southwestern Ireland and a yet to be determined core from the western Atlantic Ocean. From these records details about productivity, temperature, thermocline depth and relative sea level can be obtained. Time series analysis can furthermore give better constraints on the timing and relative leads and lags compared to the orbital cycles. The first biogeochemistry results appear promising and match well with the palynological data.

Marie Thomas (mtho177@tigers.lsu.edu) Louisiana State University, U.S.

At the beginning of my undergraduate education, I had my heart set on pursuing medicine. After a few episodes observing in a downtown Jackson, MS, hospital, I quickly realized medicine was not the right career for me. By that time, I had taken an introductory geology course and attended a field course in Yellowstone, and I found that the study of the earth and the organisms that lived on it was equally as fascinating as the human body. I loved both geology and biology, so I decided to double-major in both fields and graduated from Millsaps College in Jackson in May of 2011.

During my time at Millsaps, I had the opportunity to work with several wonderful professors who encouraged me to pursue research. Throughout my courses, I especially loved paleontology, but had no professor to advise me in that type of research. Instead, I completed my Honors Thesis doing research on the biogeography of a rare salamander species in the biology department. While I enjoyed it, I knew I did not want to continue that research as a graduate student.



AASP supports students!

When applying to graduate programs, I kept my favorite classes, botany and paleontology, in mind, and when I came across Dr. Sophie Warny's page on the Louisiana State University geology website, I knew that researching with her would directly align with my interests. Over a year later, I am so grateful to have the opportunity to work in her lab on a project I find both fascinating and rewarding.

For my dissertation research, I am performing palynological analysis on sedimentary sections obtained during the PANASH and PECTEN cruises in the Gulf of Papua in 2004 and 2005. My research has two phases. Phase I analyzes the modern spatial distribution of palynomorphs in 40 cores distributed throughout the gulf. Using species assemblages, I hope to correlate their distribution with climatic and oceanographic parameters, including temperature, salinity, and nutrient concentration following the methodology of de Vernal et al. (2005) for dinoflagellate cysts and Fauquette et al. (1998a,b) for pollen and spores. Species distributions should allow us to further infer conditions of sediment transport and deposition throughout the gulf. Phase II of my research focuses on sections obtained from long core material. I will analyze species change over Marine Isotope Stages 5 to 1 to better resolve climate change in the same region. I hope to apply assemblages obtained in Phase I to reconstruct variations in climatic and oceanographic parameters through time. I believe that using palynology can provide future researchers with another tool to recreate past conditions in the region rather than simply relying on isotope proxies alone. I plan to present a poster on my current results at the AASP conference in Lexington this summer.

CONGRATULATIONS TO THE THREE STUDENTS SELECTED FOR A 2012 AASP TRAVEL AWARD

The following students will receive funding to present their research at an upcoming palynological conference.



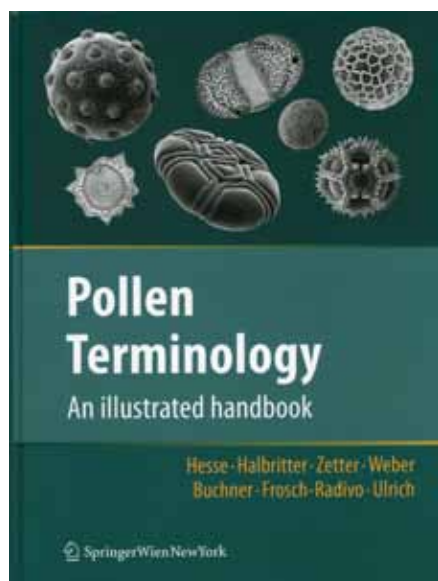
Matea Drljejan (md08tz@brocku.ca), Brock University, Canada. Matea will use this grant to present her research on the application of palynofacies analysis to Miocene marine and Holocene freshwater samples.



Abigail Rooney (abrooney@tcd.ie), Trinity, Dublin, Ireland. Abi will use this grant to present her results on stable isotope analyses of *Tasmanites* from late Devonian-early Carboniferous shales from East Kentucky.



Gilda Lopes (gilda.lopes@lneg.pt), Algarve, Portugal. Gilda will present her research on the provenance of the reworked Ordovician palynomorphs from the Santa Susana Basin in Portugal.



A BOOK REVIEW

Pollen Terminology: An Illustrated Handbook

By Alwynne B. Beaudoin
Royal Alberta Museum, Edmonton, Alberta

This extremely useful book was brought to my attention by one of my students who was, at the time, grappling with the complexities of pollen terminology and struggling to visualize in three-dimension the specimens she was seeing under the microscope. Despite the formidable array of books in the Royal Alberta Museum's Quaternary Environments Laboratory, and a large pollen reference collection, she was still having difficulty envisioning the 'squished blobs' on the slide as real objects. Even with numerous sketches, descriptions, and sessions at the microscope, I was still unable to clearly convey some of the more subtle distinctions in their structure and form. "Hey, Alwynne," she said one day, turning on her laptop and pointing at the screen, "take a look at this PDF. You can really see what the structures are on these images. Now I see what you're driving at. These pollen pictures are great!" Yes, they are. And, after looking through some more pages, I decided this was a book I had to have for the lab.

Pollen terminology is complex and daunting, but

a good grasp of it is essential for learning how to describe and identify pollen. In fact, Hesse *et al.* note that "[f]rom at least 250,000 plant species only ca 10 percent have been studied with respect to pollen grain morphology" (p. 13). A rather remarkable statement, when you think about it in light of almost a century of intensive research in pollen analysis. This means that there are at least more than 225,000 different extant pollen taxa still to be examined and formally described. In fact, the figure may be higher. A recent re-evaluation by Paton *et al.* (2008) puts the number of flowering plant species at 352,000!

The title, *Pollen Terminology*, does indeed provide an accurate and succinct summary of this book and its contents which are organized into four main sections: a General Chapter, an Illustrated Glossary, an Alphabetic Glossary, and an Annex. Each section is identified by its own coloured tab, which makes finding material in the book quite straightforward.

The General Chapter (pp. 5 –55) is basically an introduction to pollen morphology and terminology. This is a useful survey and contains many explanatory diagrams and images. Terms that are further described in the Illustrated Glossary are highlighted in bold type. However, the language within this chapter is occasionally awkward and does not read well to a native English-speaker. One section, for example, is called "Inherence of Misinterpretation" and even after reading the subsequent text several times I am still not sure what this heading means. The section actually deals with pollen grain features that may be ambiguous or prone to misinterpretation, such as tripartite markings or oddly formed apertures.

The General Chapter also includes a short discussion of "Controversial or Fuzzy Terms" and an examination of "Why Do We Need Categories?" This latter section points out that divisions between categories, such as pollen size, are subjective. In part, the assignment of any grain to a specific category is influenced by the evaluation and

judgement of the observer and by factors such as the preparation method and the quality or type of equipment (compound microscope) being used (p. 27). Here, and elsewhere, Hesse *et al.* note some of the limitations of light microscopy, such as the fact that some structural or ornamentation features cannot be clearly distinguished because they are at the limit of resolution or visibility of the technique. Such features become clearer using SEM. For example, grains that are described as psilate using LM may show ornamentation when examined with SEM. Such distinctions, however, are small comfort to pollen analysts trying to identify grains and count samples using routine LM techniques.

The bulk of the book (pp. 58–223) consists of the Illustrated Glossary, which is divided into seven major sections: pollen unit, pollen class, shape and size, aperture, ornamentation, pollen wall, and miscellaneous. The latter category includes features such as pollenkitt and viscin threads. Each glossary term is coded according to whether it is used in light microscopy (LM), scanning electron microscopy (SEM), or transmission electron microscopy (TEM), with some terms being applicable in more than one context. Terms are also coded as to whether they refer to morphology, anatomy, or functional relevance.

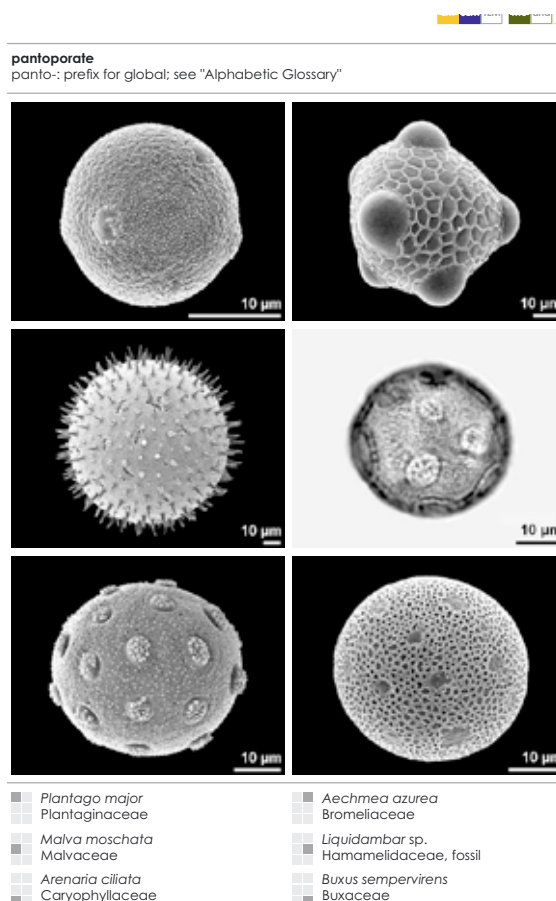
In addition to familiar and widely used basic descriptive terms (e.g., triporate, striate, annulus), the text also includes many less familiar terms

(e.g., tenuitas, trichotomosulcus) that are not as commonly used. I suspect that many palynologists will find, just as I did, some new or lesser-known terms in this section. In this sense, the book is also a good resource for both experienced palynologists and neophytes. The glossary also illustrates some “fuzzy” or ambiguous terms, such as pseudocolpus or poroid, that, for various reasons explained in the General Chapter, may be subject to confusion. Two common prefixes that will not be found in

the glossary are “zono-” or “zona-”. Hesse *et al.* (p. 48–49) consider that these are “a source of endless confusion, misunderstanding and superfluous inflation of terms” and they recommend “that all these [compound] terms should be avoided”. The authors (p. 8) acknowledge their debt to Punt *et al.* (2007), which provided them “the basis of the present terminology”.

Most of the glossary pages include six images. The majority are SEM images, although the pollen wall section is comprised mostly of TEM images, showing details of the cells, wall layers, and structure. Each image has

a scale bar in microns or, rarely, mm (for pollinia). The images are in black and white but occasionally a subdued mustard colour is used to highlight the feature being defined. Most images are usually of a single pollen grain, or occasionally groups of grains. Other images, however, zoom in to highlight details of ornamentation, structure, or apertures. Both hydrated and dry pollen grains are shown, emphasizing the way in which this changes the appearance of the grains, sometimes making



details of the colpi, for example, difficult to see. Most images are of modern pollen, but there are a few images of subfossil pollen grains. Some of the LM images are of stained grains. The sample page shown here better illustrates my discussion.

The LM and TEM images are very good and the SEM images are uniformly excellent. They are crisp and clear, with good contrast. The grains are very clean, with no adhering extraneous tissue or plant material. The grains are also well oriented to show the target features. The majority of the images are credited to PalDat (www.paldat.org) and the Society for the Promotion of Palynological Research in Austria (www.autpal.at). This society is based at the University of Austria, Vienna (see www.botanik.univie.ac.at/sfb/), which is also the authors' home institution. Having spent a lot of time myself trying to get good display-quality illustrative SEM images of seeds, I can only admire the amount of work that clearly went into capturing the images in this volume. Obtaining such a suite of consistently high-quality images is a remarkable achievement. This book is definitely worth having for the images alone.

Many of the taxa used as illustrative examples will be familiar to North American palynologists, but there are many pollen grains from plant families more common elsewhere. There is no geographic index to the pollen types. I looked up the distribution for the first species listed for each letter in the index, and based on that sample, the pollen types are drawn mostly from temperate, subtropical, and tropical floras, from many different habitat types, and from all continents except Antarctica. The index of plant taxa is almost eleven pages long, showing the enormous diversity of pollen types represented in this glossary.

Despite my cavils about the occasional ungraceful writing, I certainly recommend this volume. It is a book that should be on every palynologist's bookshelf, right next to the classics by Kapp *et al.* (2000), Traverse (2007), and Faegri *et al.* (1989). It complements those textbooks very well and is a great teaching resource. It's one of those books that you didn't know you needed, but the instant you see it, you know it's just what you've wanted and is soon going to be indispensable.

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- Note: Edits provided by R. Wicander.

Melissopalynology

A note from Dr. V. Bryant:

COLLECTING POLLEN WHEN

BEES ARE PRESENT

Not all melissopalynologists work only at their desks or in the lab looking through a microscope. Some, as illustrated in the photo, actually go to beehives to collect their own samples. However, because of the African Bee problem in Texas, note that it is recommended to wear a full protective outfit when retrieving samples for analysis.



A note from Dr. S. Warny:

THANK YOU TO Pr. MEREDITH H. LIEUX FOR HER DONATION TO CENEX!

Dr. Lieux (right in the picture) recently donated her reprints to CENEX at LSU. The donation includes the full set of the atlas of pollen from Louisiana plants she wrote. Dr. Lieux is still considered the pioneer in the U.S. analysis of honey as she published the first papers on honey analysis while she served as a faculty in the biology department at LSU in the 1980's.

My students and I are very grateful.



South Africa's palynological challenges – a bright future

by Annette E. Götz, Rhodes University (South Africa)

Our knowledge on Pre-Quaternary palynology, especially the Permian-Triassic palynology of South Africa's Karoo Basin is based on fundamental works carried out in the 70ies and 80ies of the last century by Anderson (1977) and Falcon (see 1989 and references therein). So far, all correlation schemes of Permian-Triassic sedimentary series in the Karoo and the detailed coal seam detection and characterization in these basins are based on these data. Integrated palynological-sedimentological investigations, applying the detailed study of palynofacies to basin analysis, have not been addressed in the past, since e.g. coal seam correlation on a high time resolution was beyond the scope of the coal mining industry, who have relied mainly on stratigraphic data for their exploration activities with respect to economic mining.

Integrated palynological palaeobotanical studies have also not yet been

carried out, although there are unique plant fossils known from the Karoo Basin with a long history of scientific work reflected in numerous excellent publications (e.g., Plumstead, 1969; Anderson & Anderson, 1985; Kovács-Endrödy, 1991; Bordy & Prevec, 2008).

On the other hand, there is huge potential for collaboration with scientists from other parts of Gondwana, particularly South America (Brazil) and Australia, where the sciences of palynology and palaeobotany are further developed. This is important for inter-continental, intra-Gondwanic correlations, which have a direct impact on our understanding of global extinction phases, climate change, plate tectonics etc., and particularly in understanding the palaeodistributions of organisms in time and space.

From this background, it seems a must

to develop new integrated concepts facing stratigraphical, palaeobiogeographical, palaeoecological, palaeoenvironmental, and palaeoclimatic questions. Palynology is thus seen to be a crucial discipline to contribute to the establishment of such new concepts for the Karoo and its Permian-Triassic depositional history. Future challenges are manifold and the Karoo subbasins are a perfect play area – well, a bright future for palynologists!

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Photo caption (top of page 16):

The No. 2 coal seam of the northern Witbank Basin, South Africa. Postglacial fluvio-deltaic deposits of the Permian *Ecca* Group record a major floral change succeeding the Permo-Carboniferous Gondwana glaciation. The palynomorph assemblages indicate a cold climate, fern wetland community, characteristic of lowland alluvial plains, and an upland conifer community in the lower part of the coal seam. Up section, these communities are replaced by a cool-temperate cycad-like lowland vegetation and gymnospermous upland flora (Götz & Ruckwied, 2012).

PalyWeb: A “lazzarus” palynomorph database project on the web

by Sophie WARNY, Philippe STEEMANS, Pierre BREUER, and Elodie PETUS

Key words: palynology; database; internet

Introduction

Since the sixties, palaeopalynology has been experiencing a spectacular growth in publication. Already by the end of 1966, KREMP (Lentin et al., 1996) had calculated that about 330 new articles on palynology were published each year in more than 200 journals, and about 4200 had already been published. In a paper published during the 90's, Jansonius & McGregor (1996) made an estimation of the amount of palynological papers published each year. Although they noticed that the data set is incomplete, they estimated that about 400 new articles are published a year. One of the unfortunate consequences of the abundance of published information is a taxonomic chaos for some palynological groups. In addition, numerous palynomorphs have been published invalidly, some with redundant names. Several taxa have been described in publications with a limited distribution through different countries or in languages not accessible to most palynologists.

Adding to this problem is the decrease of palynological laboratories around the world, and the loss of some important palynological collections. When a curator or professor of palynology retires or passed away, and is not being replaced, one has to worry about the preservation of the palynological database established at that specific institute, university or museum.

Palynologists around the world are increasingly convinced that establishing a broad access database with open access for research and education is urgently needed to preserve our field of research, and to educate and serve future generations of palynologists. Several of us already

have our own curation programs, but these data are not accessible unless you work with this specific group. We need to create open access online datasets to not only manage the mountain of data published in the past and in years to come, but also to increase the accessibility of existing collections. Such dataset already exist, for instance PALYNODATA, DinoSys, Dinoflag, etc. and these are well publicized. But others are for the most part not as well known by the community, such as the Palaeozoic-centric database Phytopal for the acritarchs and ChitinoVosp for the Chitinozoans.

One possibility that we would like to bring to the attention of the palynological community is to adopt a technology that any one of us could access for free, wherever we are located in the world; i.e., the Wiki technology.

The WikiMedia technology

WikiMedia is a free software originally written for the well-known Wikipedia encyclopaedia freely accessible on internet (<http://en.wikipedia.org/wiki>). This technology is increasingly part of the education in countries such as the U.S., as it supports projects of the non-profit Wikimedia Foundation (http://en.wikipedia.org/wiki/Wikimedia_Foundation) as well as many other wikis. The term wiki is a shorter form of « wiki wiki » which is derived from the native language of Hawaii, meaning something quick or fast. On the internet, a wiki is a type of website that allows users to easily add, remove, or edit all content, very quickly and easily.



With this in mind, PalyWeb was created. PalyWeb is a palynomorph database project based on WikiMedia technology. It is a web based free-content palynological database in open access. To our knowledge, it is the only online database using this mode of data acquisition and management in palynology. It is also the only project aiming to collect datasets on all fossilised palynomorph taxa. Its conception is similar to the Wikipedia encyclopaedia and, therefore, can be considered as a wiki website. The ease of interaction and operation makes a wiki website an effective tool for collaborative scientific writing and education. PalyWeb is designed to be a database filled collaboratively by volunteers, allowing most articles to be changed by anyone with access to a computer, web browser and Internet connection. However, users need to be logged in to avoid external vandalism, and inconsistencies. PalyWeb is built on the expectation that collaboration among users will improve articles over time. Although the site will be "open access", the fact that "peer-review" and entry editing are carried on by users, means that the palynological database need to be restricted (for contributions and edits) to palynologists around the world, and not be fully opened to the general public.

To give estimation on the volume of information that the operating system can manage, the Wikipedia website provides some statistics: on May 2006, Wikipedia had 1,122,525 articles. That number excludes redirects, discussion pages, image description pages, user profile pages, templates, help pages, portals, articles without links to other articles, and pages about Wikipedia. At that time, users had made 53,926,940 edits, an average of 12.98 per page, since July 2002. Today (see graph below from Wikipedia source), there are more than 4 millions articles on the site.



Fig. 1. Wikipedia content evolution (source Wikipedia)

The PalyWeb project

The PalyWeb project is housed on the web server of the University of Liège, in Belgium. A daily backup is carried out in order to safeguard all information in the event of failure of the system. Its internet address is: <http://www.palyweb.ulg.ac.be/wiki>.

The PalyWeb project began in 2005. Because of the field of research of the lead author (P. Steemans), the pilot project focussed on the Palaeozoic. But obviously, there are no technical limits. The only limits are the one that we will create ourselves as scientists; limits are those of the management of the database by volunteers and contributions by fellow scientists.

Since its conception, although many palynologists are interested in this database, few had had the time to fill the files with data. The PalyWeb is a "lazarus" project because interests about it are manifested regularly before to be forgotten some months after. One way to solve this would be to have one staff that would be solely focusing on the database. Obviously, the key problem is purely financial. If all palynologists, as petroleum societies, institutes, universities etc. could unite to pool funds, it should be possible to hire one staff member to manage the database. This should be a subject of discussion for IFPS, IPC, AASP, etc.

PalyWeb is formatted to host the description of a maximum of available palynomorph taxa published in conventional scientific reviews in accordance with the Botanical and Zoological Nomenclature Codes. It was officially presented to the scientific community at the Commission International de la Microflore du Paléozoïque (<http://www.cimp.ulg.ac.be>) at the General meeting of Prague (2006). PalyWeb is not an online publication, new taxa cannot be published through this website as it is not accepted by the BNC. There is no limitation in number of pages or in length. Text, figures and pictures may be up- and downloaded but sizes of the pictures are limited. It is also forbidden to up-load pictures protected by a copyright without referencing to the original. The navigation through pages may be done by clicking on the internal links or in typing keywords in search engine (e.g. in typing a name of species, etc.).

At the moment, the database is organized in three sections: the main section contains the descriptions of the taxa previously published in scientific reviews, the second contains unpublished taxa left in open nomenclature for which information from the PalyWeb community is requested, and the third is devoted to enigmatic

palynomorphs. Those last two sections have to be considered as a discussion forum instead of a section of the database. Of course, this structure can be updated in the future based on feedback from the community.

The flexibility is one of the advantages of the PalyWeb site. Each page (article) is articulated around four main components:

- The first one is the "page" itself which is named with a title located on top of the screen.
- The second component is obtained by selecting the heading "to modify" (edit page), where the page can be changed immediately, without restrictions.
- A third component is the heading "discussion", where PalyWeb users can exchange their ideas on the contents of the pages.
- The last component is the "page history". All former versions of the pages are stored with the user names and the authors of modifications. Each previous version can be

restored (a very useful tool as this prevents mistakes and allows readers to follow how the page content has evolved following modifications made by various contributors).

The general architecture of the website is illustrated on Figure 2, using the example of the page organization related to the cryptospore genus *Tetrahedraletes*. The blue words are internal links to existing pages. The words in red are links that have been created but the pages do not exist yet. All useful words for the database objective can be transformed into links related to different PalyWeb pages (external links are also possible). Most of the links are to taxonomic pages, but it is possible to link to other kinds of pages such as personal pages, etc. Each page can be associated to categories. This is a very important tool, not only to navigate the website, but also to organize pages in relation to different criteria. It is particularly interesting to group taxa by morphological characteristics, by stratigraphic levels or by geographic distribution and so on. Categories are made possible by grouping, alphabetically or by criteria.

The screenshot displays a web page for the genus *Tetrahedraletes*. At the top, there's a user profile for 'SophieW' with links to 'my talk', 'preferences', 'my watchlist', 'my contributions', and 'log out'. Below this is a navigation bar with tabs: 'article', 'discussion', 'edit', 'history', 'move', and 'watch'. The main title is 'Tetrahedraletes'. Below it, the text reads 'Genus *Tetrahedraletes* [Strother](#) & Traverse 1979 emend. [Burgess](#) 1991, p. 579' with an '[edit]' link. The 'Type species' is *Tetrahedraletes medinensis* Strother & Traverse 1979 from the Tuscarora Formation, Pennsylvania, USA. The 'Emended diagnosis' describes permanent tetrahedral cryptospore tetrads. The 'Discussion' mentions the genus was erected to encompass 'tetrads of inaperturate, sub-triangular spores or spore-like palynomorphs'. A microscopic image of a tetrad is shown with a 'Description' label. Below the image, the text states 'Genus *Tetrahedraletes* [Strother](#) & Traverse 1979, p. 9' with an '[edit]' link. The 'Diagnosis' describes tetrads of inaperturate, subtriangular spores. The 'Discussion' mentions a monotypic genus based on the species *Tetrahedraletes medinensis* Strother & Traverse 1979. At the bottom, there's a section for 'Tetrahedraletes Species' with an '[edit]' link, listing *Tetrahedraletes medinensis* Strother & Traverse 1979 and a category 'Cryptospore'.

Fig. 2: Example of a PalyWeb page containing the description of the *Tetrahedraletes* genus. Words marked in blue in the descriptive text are linked to other pages such as bibliographic references or species description.

One page can belong to different categories. New categories are created or modified as are any other pages. This said, the high flexibility of such a database can also generate problems. To avoid inconsistency, it is important to follow some syntax rules when naming internal links. For example "cryptospore" and "cryptospores" are two different pages. Therefore, it is necessary to maintain some strictness in the way one contributes to the database. But again, if mistakes are made, all users may correct them.

The advantages of PalyWeb

The advantages of such a database are numerous. The whole palynological community has free access to the website and everybody is allowed to improve or to increase its contents. The free distribution, constant updates, diverse and detailed coverage, by numerous professional palynologists would guaranty the high quality of data on the website. The database is accessible from any kind of computer with an internet connexion (Windows, Mac, Linux). A common web browser is sufficient to work with the database (Internet Explorer, Firefox, ...). Therefore, it is not necessary to buy new software and to keep it up to date. The database is accessible wherever you are. To work with a colleague in a foreign country, you would not need to carry a copy of the database and there would be no problem of compatibilities. Information entered in the database is immediately available to all the community. To the contrary of other usual databases, it is not necessary to wait once the database is considered complete to make it accessible. The database would be a "work in progress" as long as the community would work on it. In addition, as new palynological works become available, PalyWeb would continually and immediately be upgraded. Again, there is no limitation in size and contents. The content of the database is highly flexible and its structure opens the door to discussions. The improvement of the database is not a function of the database creator or of a small group of persons; it will be the result of the worldwide collaboration of the whole palynological community. It does not require the organisation of meetings which are usually limited to people who have subsidies to travel.

The future of PalyWeb

To survive and be useful, Palyweb needs to grow and be used. One simple possibility is to use this site to share our own database. Undergraduate students could be hired to copy/paste data from individual database and transfer them to the PalyWeb.

Another possibility would be to start building PalyWeb via our

education programs. Most of us in academia are teaching classes on palynomorphs. One possibility to increase the content and traffic on PalyWeb would be to assign each student in our classes a number of palynomorphs to describe online using the WikiMedia technology. This is already being done at various universities such as LSU as part of the graduate students' "Distinguished Communicators" training, for instance, students are encouraged to write Wikipedia pages on the topic of their research. If we were to implement that with PalyWeb and our microfossil classes worldwide, the best would be to select palynomorphs well known by the faculty in charge of a specific classroom. The student could build a wiki page on PalyWeb following the model of the existing PalyWeb pages. If the semester is 20 weeks long, the student would have as a weekly "homework" the task of creating one page per week on one microfossil. They would do so by compiling data from the literature and in house database. With 10 students, at the end of the semester, 200 palynomorphs could be addressed. The role of the faculty would be to verify the information before making it public. The experts worldwide would then have the opportunity to comment on the validity of the information and improve it as needed. If this is repeated each year, in each institution teaching palynology, the database would build very quickly with a wide range of palynomorph types of all ages and provenance.

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Note: This article is an updated version of a paper published in 2007 by Steemans and Breuer.



JOB MARKET



شركة تنمية نفط عُمان ش.م.م
Petroleum Development Oman L.L.C.

Position: Palynologist/Bio-stratigrapher (Early Paleozoic focus)

Location: Muscat, Sultanate of Oman

Company: Petroleum Development Oman (PDO) is the foremost exploration and production company in the Sultanate of Oman.

See www.pdo.co.om/pdoweb for more information.

PDO's Stratigraphy team of 9 specialists operates within the Exploration Department but provides services and consultancy across the organisation (production, development, Government Gas and a study centre). Our biostratigraphical emphasis is on clastic Palaeozoic reservoirs and PDO operates its own palynology laboratory.

Synopsis of Role and Experience Required: Experienced Palynologist providing stratigraphic consultancy services pan-PDO. Applicant should have a relevant MSc/PhD qualification (preferably from renowned palynology centre of excellence) and relevant industrial experience with a minimum of 5 years hands-on palynology with a relevant oil & gas company. Preference will be given to applicants with Middle East / North African Early Palaeozoic and hands on laboratory preparation experience. Expertise in Acritarch stratigraphy and Cryptospore and Chitinozoa fossil groups would be a distinct advantage. Coaching and mentoring experience in multicultural context is desirable.

Benefits: PDO offers a competitive expatriate salary package in line with other key operators in the region. Oman offers an unparalleled lifestyle in the Gulf Region. Contract will be fixed term for a 4 year period, but with a possibility for renewal or extension.

Contact: Please send email with CV expressing your interest in the position to Richard Hallett, Team Lead (Bio)stratigraphy, at Richard.RH.Hallett@pdo.co.om

A more detailed job description is available on request.

Commission Internationale de la Microflore du Paléozoïque

PhD fellowship

RALI: The Rise of Animal Life (Cambrian-Ordovician) - organization and tempo: evidence from exceptionally preserved biotas

The RALI project focuses on one of the most important periods in the history of the biosphere, the Cambrian-Ordovician interval (ca. 542-443 Ma) during which animal life arrived on the scene with unprecedentedly complex functional anatomies that rapidly changed the global marine ecosystem. The early animal life is thought to have colonized the marine ecospace during its Early Palaeozoic history in two major events, i.e., the « Cambrian Explosion » and the « Great Ordovician Biodiversification Event (GOBE) ». But many questions remain regarding their chronology, processes and their environmental triggers. One of the principal obstacles for better understanding these events is the major discrepancy in the quality and completeness of the fossil record throughout the first 100 million years of animal evolution. Our project addresses this issue by studying relatively newly discovered exceptionally preserved biotas in a number of sites that fill the data-gaps in the Early Palaeozoic fossil record, both in time and space.

The project the PhD student will be involved in revolves around these fundamental questions in the early steps of animal evolution:

- 1) How and how fast did the biodiversity of early marine communities change through space and time?
- 2) Were there really two separate evolutionary events («Cambrian radiation» and «GOBE») or are these an artifact of the incomplete dataset?
- 3) How did the trophic web unfold through the first 100 million years of animal evolution? What are the essential ecological innovations that led to modern-style ecosystems?

Specific objectives of the tied PhD fellowship

- 1) As the (bio)stratigrapher in this mainly palaeobiological project, you will study the stratigraphy of the sites of exceptional preserved biotas. You will use classic palynomorph biostratigraphy to confirm ages of the sites under investigation (i.e., using acritarch data in the Cambrian and chitinozoan data in the Ordovician). One site of specific interest will be that of the exceptionally preserved Lower Ordovician Fezouata biota in Southern Morocco, including field work in the Draa valley, north of Zagora (Van Roy et al. 2010). Other sites may include those of the exceptionally preserved biota of the Early Cambrian Emu Bay Shale in Australia, the Sirius Pass in Greenland and several emerging exceptional fossil sites (Lagerstätten) in the Ordovician of Wales.
- 2) Palynomorph microfossils in essence have a more complete record through time than do macrofossils. You will test the preservation potential of these lagerstätten for 'traditional' microfossils and compare and integrate these with existing biodiversity data. Are they over/under represented in new lagerstätten of various sorts?
- 3) A third objective will be to investigate your samples for small carbonaceous fossils (SCFs). This newly named group (Butterfield and Harvey, 2012) encompasses Wiwaxia sclerites, priapulid-like teeth, molluscan radulae, crustaceans. These represent forms too large and/or delicate to be recovered via conventional palynological processing, but too small to be recognized on bedding surfaces and

may provide an important insight in early metazoan diversity and distribution. The Lower Ordovician Fezouata Fm in Southern Morocco will be your key target.

4) Localized Lagerstatte-type data are unsuitable for estimating first appearances or documenting macroevolutionary patterns, particularly in light of the marked environmental and temporal constraints on Burgess Shale-type preservation (Butterfield and Harvey, 2012), even when considering the additional sites we plan to add to the database. You will try to add additional data on SCFs, spatially and temporally away from sites with exceptional macro-fossil preservation, to provide additional information on the tempo and mode of biodiversity changes through this period.

5) By adding your data from objectives 1 to 4, you will help construction of a new database that aims to quantify the evolution of biodiversity and occupation of ecospace within this time interval in a standardized fashion. This will help answer questions with regards to the assumed separation of evolutionary events in the Cambrian and Ordovician.

Your profile

You are a geosciences (or equivalent) graduate student that has graduated in the top of your student cohort, with a keen interest in micropalaeontology and geological field work. You are eager to use a multidisciplinary approach (not only micropalaeontology but also sedimentology, geochemistry, etc). You are meticulous, able to work in a team, and able to finalize a project within the time allocated, including writing up reports and papers. You are willing to travel from your base in Lille to other institutes in France and Europe to meet and work with the project partners. You do not shy away from palynological laboratory work nor from field work in remote places.

We offer

A three year position with full salary, based at the University of Lille 1 (Villeneuve d'Ascq, France) and administratively attached to the CNRS (www.cnrs.fr). Expenses for field work and selected conferences will be covered through the research program.

A multidisciplinary project, centred around micropalaeontology, and embedded in a large, wide-scaled palaeobiological program. A range of supervisors who are specialists in their field. A chance to learn a wide range of techniques and to start building a scientific network.

The CNRS is committed to equality of opportunity, supports and encourages under-represented groups and values diversity.

Supervisor:

Dr. Thomas Servais (CNRS-Lille1): micropalaeontology (phytoplankton) Co-supervisors:

Dr. Thijs Vandenbroucke (CNRS-Lille1): micropalaeontology (zooplankton) Prof. Nicholas Butterfield (University of Cambridge, UK): SCFs

Dr. Jean Vannier & Dr. Bertrand Lefebvre (CNRS-Lyon): RALI coordination

Contact: any questions: Thomas.Servais@univ-lille1.fr or Thijs.vandenbroucke@univ-lille1.fr

Applications & deadlines:

Send motivation letter and CV in English in duplicate to: Thomas.Servais@univ-lille1.fr and Thijs.vandenbroucke@univ-lille1.fr as soon as possible. Please also include (a) recommendation letter(s) by your MSc project supervisor(s).

Interviews will be scheduled late June 2012 Start date: 1st October 2012 End date: 30th September 2015



The stairway of the Montagne de Bueren in beautiful downtown Liège, Belgium (source: Wiki Commons).

Palynologist position

You are a geosciences (or equivalent) graduate student with a Master degree or a PhD thesis. You have done a specialized degree in palynology (even better, on acritarchs). If you are doing your PhD thesis at the moment, you still may contact us. You are meticulous, able to work friendly in a team, and able to finalize a project within the time allocated, including writing up reports and papers in excellent English. You have a good feeling towards taxonomy and you are able to quickly learn new software. You can adapt and integrate yourself in the way of life of Belgium.

We offer you a three year position starting January 2013, with full salary and possibilities to obtain some pay advantages (variable according to the years and your status), based at Liège (University, Liège – Belgium) and attached to PalynoStrata. We are a small scientific research team, working in collaboration with the industry or other institutions. The salaries are covered by the projects that we obtain. The three years may be extended depending on external consultancy contracts. The extant project consists of the revision of the Devonian acritarchs, mainly from the Gondwana. The study includes mainly systematic and biostratigraphy, but also palaeoecological / palaeogeographical aspects. All data will be included in a data base. If the project is accepted, it will be funded by the Brazilian Petrobras Society for three years. Some information is confidential, but some may be used for publications and/or post-doctoral position.

You are interested? Send me a letter from the contact information of two referees and a detailed CV (including your familial situation, your education, your professional experiences, a picture of you and a handwritten letter of motivation). - p.steemans@ulg.ac.be

Hope to have you in our PalynoStrata team.

Supervisor: Dr. Philippe Steemans (NFSR senior research): p.steemans@ulg.ac.be

Research assistant: Elodie Petus: epetus@ulg.ac.be

With the scientific collaboration of: Dr. Alain LeHérissé (CNRS, Brest, France), co-supervisor of the project

FYI

Some recent publications by members

Note: this list was compiled by Dr. Petra Mudie
If you are a member and would like your publications highlighted here,
please email her at: mudiep@ns.sympatico.ca

2011

CASAS-MONROY, O., ROY, S. and ROCHON, A. 2011. Ballast sediment-mediated transport of non-indigenous species of dinoflagellates on the East Coast of Canada. *Aquatic Invasions*, 6(3), 331-348.
GERRIENNE, P., GENSEL, P. G., STRULLU-DERRIEN, C., LARDEAUX, H., STEEMANS, P. and & PRESTIANNI, C. 2011. A simple type of wood in two early Devonian plants. *Science*, 333, 837.
<http://hdl.handle.net/2268/97121>

PIENKOWSKI, A.J., MUDIE, P.J., ENGLAND, J.H., SMITH, J.N. and FURZE, M.F.A. 2011. Late Holocene environmental conditions in Coronation Gulf, southwestern Canadian Arctic Archipelago: evidence from dinoflagellate cysts, other non-pollen palynomorphs, and pollen. *Journal of Quaternary Science*. 26(8), 839-853

SCOTT, D. B., MUDIE, P. J., and BRADSHAW, J.S. 2011. Coastal evolution of Southern California as interpreted from benthic foraminifera, ostracodes, and pollen. *Journal of Foraminiferal Research*, 41 (3), 285–307.

STEEMANS, P., BREUER, P., PETUS, E., PRESTIANNI, C., de VILLE de GOYET, F. and GERRIENNE, P. 2011. Diverse assemblages of Mid Devonian megaspores from Libya. *Review of Palaeobotany and Palynology*, 165 (3-4), 154-174.

2012

BORGES, M.E.N., RIDING, J.B., FERNANDES, P., MATOS, V. and PEREIRA, Z. 2012. Callovian (Middle Jurassic) dinoflagellate cysts from the Algarve Basin, southern Portugal. *Review of Palaeobotany and Palynology*, 170, 40-56.

BRINGUÉ, M. and ROCHON, A. 2012. Late Holocene paleoceanography and climate variability over the Mackenzie Slope (Beaufort Sea, Canadian Arctic). *Marine Geology*, 291-294, 83-96.

BOWMAN, V.C., FRANCIS, J.E., RIDING, J.B., HUNTER, S.J. and HAYWOOD, A.M. 2012. A latest Cretaceous to earliest Paleogene dinoflagellate cyst zonation from Antarctica, and implications for phytoprovincialism in the high southern latitudes. *Review of Palaeobotany and Palynology*, 171, 40-56.

EVANS, H.M., LEE, J.R. and RIDING, J.B. 2012. A thrust-stacked origin for inter-stratified till sequences: an example from Weybourne Town Pit, north Norfolk, UK. *Bulletin of the Geological Society of Norfolk*, 61, 23-49.

GÖTZ, A.E. and FEIST-BURKHART, S. 2012. Phytoplankton associations of the Anisian Peri-Tethys Basin (Central Europe): evidence of basin evolution and palaeoenvironmental change. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 337-338, 151-158.

MERTENS,, K.N., BRADLEY, L.R., TAKANO, Y., MUDIE, P.J., MARRET, F., AKSU, A.E., HISCOTT, R.N., VERLEYE, T.J., MOUSING, E.A., SMYRNOVA, L.L., BAGHERI, S., MANSOR,, M., POSPELOVA, V. and MATSUOKA, K. 2012. Quantitative estimation of Holocene surface salinity variation in the Black Sea using dinoflagellate cyst process length. *Quaternary Science Reviews*, 39: 45-59.

POUND, M.J., HAYWOOD, A.M., SALZMANN, U. and RIDING, J.B. 2012. Global vegetation dynamics and latitudinal temperature gradients during the Mid to Late Miocene (15.97-5.33 Ma). *Earth-Science Reviews*, 112, 1-22.

RICHEROL, T., PIENITZ, R. and ROCHON, A. 2012 Modern dinoflagellate cyst assemblages in surface sediments of Nunatsiavut fjords (Labrador, Canada). *Marine Micropaleontology*, 88-89, 84-54.

RIDING, J.B. 2012. The Jurassic dinoflagellate cyst *Gonyaulacysta dentata* (Raynaud 1978) Lentin & Vozzhennikova 1990 emend. nov.: An index species for the Late Callovian to earliest Oxfordian of the northern hemisphere. *Review of Palaeobotany and Palynology*, 176-177, 68-81.

ROY, S., PARENTEAEU, M., CASAS-MONROY, O. and ROCHON, A. 2012. Coastal ship traffic : a significant introduction vector for potentially harmful dinoflagellates in Eastern Canada. *Journal canadien des sciences halieutiques et aquatiques*, 69, 627-644.

SHUMILOVSKIKH,, L.S., TARASOV, P., ARZ, H.W., FLEITMANN, D., MARRET, F., NOWACZYK, N., PLESSSEN, B., SCHLÜTZ, F. and BEHLING,,H. 2012. Vegetation and environmental dynamics in the southern Black Sea region since 18 kyr BP derived from the marine core 22-GC3. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 337-338, 177-193.

STEEMANS, P., PETUS, E., BREUER, P., MAULLER-MENDLOWICZ, P. and GERRIENNE, P. 2012. Palaeozoic innovations in the micro- and megafossil plant record: from the earliest plant spores to the earliest seeds. In: J. A. Talent (Ed.), *Global Biodiversity, Extinction Intervals and Biogeographic Perturbations Through Time*. Springer, New York. <http://hdl.handle.net/2268/117080>

VERSTEEGH, G., BLOKKER, P., BOGUS, K., HARDING, I., LEWIS, J., OLTMANNS, S., ROCHON, A. and ZONNEVELD, K. 2012. Flash pyrolysis and infra red spectroscopy of cultured *Lingulodinium polyedrum* (Dinoflagellata) cyst walls. *Organic Geochemistry*, 43, 92-102.



CALL FOR ABSTRACTS

Lexington 2012:

A Joint Meeting of AASP - The Palynological Society and
CIMP - Commission Internationale de la Microflore du Paléozoïque
Subcommissions

21-25 July 2012

Conference Co-Hosts

Cortland F. Eble, *Kentucky Geological Survey*
Jennifer M.K. O'Keefe, *Morehead State University*

We invite submission of presentations (oral or poster) on all aspects of palynology. Studies concentrating on any portion of the geologic column and modern settings are welcome. A special symposium on the Late Devonian – Carboniferous in Honor of Geoff Clayton and Ken Higgs will be held on Tuesday, July 24, 2012.

Please format your abstract following the guidelines for *Palynology*
(or see: <http://people.moreheadstate.edu/fs/j.okeefe/AASP2012/AbstractSub2012.html>)

Please use one or more of the following keywords in the e-mail subject line:
CIMP Symposium; Marine; Terrestrial; Holocene/Recent, Cenozoic, Mesozoic,
Paleozoic; Processing; Industrial; Forensic

Submit all Abstracts to:

PalynologyLexington@gmail.com

Conference website:

<http://people.moreheadstate.edu/fs/j.okeefe/AASP2012/AASP2012.html>

Contact Jen O'Keefe (j.okeefe@moreheadstate.edu) or Cortland Eble (eble@uky.edu)
for more details.



45th Annual Meeting of AASP – The Palynological Society University of Kentucky, Lexington, KY July 21 – 25, 2012

Conference Co-Hosts

Cortland F. Eble, *Kentucky Geological Survey*
Jennifer M.K. O’Keefe, *Morehead State University*

Devonian – Carboniferous Symposium in Honor of Geoff Clayton and Ken Higgs Co-chaired by Zélia Pereira and Reed Wicander



Geoff

A CIMP-sponsored symposium will be convened at the Lexington meeting in honor of Dr. Geoffrey Clayton and Dr. Kenneth Higgs. For more than three decades, Geoff and Ken have made tremendous contributions to our understanding of Late Paleozoic palynology. Lexington, surrounded by Late Paleozoic age strata, is a perfect venue to celebrate their contributions to late Paleozoic palynology!



Ken

Pre-Meeting Field Trip, July 21, 2012

A pre-meeting trip to Natural Bridge State Resort Park (www.parks.ky.gov/findparks/resortparks/nb), located approximately 80 miles SE of Lexington is planned. This will provide attendees a chance to enjoy one of Kentucky’s most scenic areas. The centerpiece of the park is a “natural arch” of Early Pennsylvanian sandstone that has been undercut by erosion. The park is transected by several well-maintained walking trails that afford easy access to this beautiful area. The park also has a very comfortable lodge and restaurant.



View from the natural bridge in early fall

Post-Meeting Trip, July 25, 2012

The post-meeting trip will explore several world-class outcrops that expose Devonian and Carboniferous strata, focusing primarily on the Devonian “black shales.” These shales are the principle source of natural gas production in Kentucky, and are being studied for their potential as a reservoir for CO₂ sequestration and enhanced gas production. The shales were deposited during a time of explosive land plant expansion and diversification. From the Middle to Late Devonian, we see the emergence of all the major plant groups that would later contribute to the vast coal accumulations deposited during the Pennsylvanian. Both macro- and micro- fossils are common and collecting is encouraged.

Devonian Shale Outcrop at Vanceburg, KY



Draft Meeting Schedule

- Saturday, July 21, 2012 –** Pre-meeting field trip to Natural Bridge State Park. Depart 8 AM, return 4 PM.
- Sunday, July 22, 2012 –** Meeting Ice-Breaker at the University Faculty Club, 6 PM – 9 PM.
Optional afternoon trip.
- Monday, July 23, 2012 –** General Presentations/posters, 8 AM – 12 PM,
Devonian – Carboniferous Symposium 1 PM – 5 PM.
“Walking tour” of the campus for spouses/guests.
Meeting Banquet at the University Faculty Club, 6:30 PM – 9:30 PM.
- Tuesday, July 24, 2012 –** Presentations /posters, 8 AM – 12 PM, 1 PM – 5 PM.
Business Luncheon at the University Faculty Club, 12 – 1 PM
- Wednesday, July 25, 2012 –** post-meeting field trip, Devonian and Carboniferous Strata. Depart 8 AM, return 6 PM.

Lexington, Kentucky

The 2012 Annual Meeting of AASP – The Palynological Society will be held in Lexington, Kentucky, U.S.A., on the campus of the University of Kentucky. Lexington is located in the heart of the Bluegrass, an area known for its gently rolling terrain and numerous horse farms. The meeting will be held on the University of Kentucky campus. It is co-hosted by the Kentucky Geological Survey (KGS), which is a research/public service institute of the University of Kentucky, and the Department of Earth and Space Sciences at Morehead State University. Morehead State University is located an hour to the east in the midst of the hills and mountains of the “Knobs,” surrounded by exposures of Devonian and Mississippian-age rocks.

Lodging

Lexington is a city for everyone’s budget! It has more than 50 motels/hotels, including a Hilton and a Hyatt Regency, with prices ranging from \$42 - \$200. In addition, lodging in the Towers dormitories will be available (estimated cost \$25/night). All rooms in the Towers have private baths, and the dormitory structure is located within easy walking distance (10 minutes) to/from the KGS.

Arrival/Departure

Air

Lexington, Kentucky is serviced by several major airline carriers, including Delta, United, Continental, and U.S. Airways, via Bluegrass Airport (www.bluegrassairport.com). Lexington is an easy hour’s drive from two larger airports, the Cincinnati - Northern Kentucky International Airport (www.cvgairport.com), and the Louisville International Airport (www.flylouisville.com).
Note: there is no public transit between either of these airports and Lexington.

Ground

Lexington is located at the juncture of two major U.S. Interstate highways, I-64 (E-W) and I-75 (N-S), and is within easy driving distance from several major U.S. cities. Greyhound bus lines also has service to/from Lexington (www.greyhound.com).

REGISTRATION AND PAYMENT

Please find on-line registration and payment method for the upcoming
45th Annual AASP-The Palynological Society Meeting
at the following link:

<http://www.palynology.org/upcoming-aasp-meetings>

All information is available on the new AASP website.

FIRST ANNOUNCEMENT

ADVANCED COURSE in Jurassic – Cretaceous – Cenozoic ORGANIC-WALLED DINOFLAGELLATE CYSTS

Morphology, Paleoecology & Stratigraphy

Utrecht, JUNE 25-29, 2012



presented by

Henk Brinkhuis (Utrecht University, NL), Martin J. Head (Brock University, Canada)
Jörg Pross (Frankfurt University, Germany), James B. Riding (BGS, UK) and Poul Schiøler (GNS, New Zealand)

With contributions from Rob Fensome, Graham L. Williams (GSC Atlantic, Halifax, Canada),
Appy Sluijs, Francesca Sangiorgi (Utrecht University, NL), Martin A. Pearce (Statoil, Houston, USA) and
Roel Verreussel, Dirk Munsterman (TNO Utrecht, NL)

Pre-registration of interest and further information: Timme Donders (timme.donders@tno.nl)





Microfossils III: Geologic Problem Solving with Microfossils

March 10-13, 2013

University of Houston

Houston, TX USA



The NAMS Section of SEPM announces the 3rd *Geological Problem Solving with Microfossils* conference (a.k.a., Microfossils III) that will be held March 10-13, 2013 at the University of Houston in Houston, Texas. The mission of Microfossils III is to bring together a diverse range of geoscientists to focus on the use of microfossil disciplines to solve geologic problems.

The conference activities include: oral and poster technical presentations, a regional pre-meeting field trip, post-meeting short courses, ice breaker, and plenary dinner at the Houston Museum of Natural Science. Tentative session themes include:

- The Microfossil record of Major Oceanic Events
- Microfossils and Unconventional Resources: The New Frontier
- High-resolution Biostratigraphy, Chronostratigraphy, and Geochronology
- Reconstructing Past Environments Using Microfossils
- Paralic and Lacustrine Micropaleontology
- Microfossils and Biofacies Analysis: Applications and Challenges
- Paleoclimate, Paleooceanography, and Relative Sea-level Change
- Taxonomy, Phylogeny, and Evolution
- New Technologies and Techniques in Microfossil Studies

Abstract submittal deadline: November 11, 2012

For more information, visit <http://www.sepm.org/nams> or contact **Dr. Mark Leckie** at:

MLeckie@geo.umass.edu



2012 GSA ANNUAL MEETING & EXPOSITION

4-7 November | Charlotte, North Carolina, USA

2012 Geological Society of America Annual Meeting, November 4-7, 2012, Charlotte, North Carolina, USA (<http://www.geosociety.org/meetings/2012/techProg.htm>)

Abstracts for 2012 GSA Annual meeting are called for the following session on **quantitative Cenozoic terrestrial climate reconstructions**.

T125. Quantitative Cenozoic Terrestrial Climate Reconstructions in the Northern Hemisphere: Evidence from Paleo-Proxies and Beyond

Rationale:

Recent advances in quantitative Cenozoic paleoclimate reconstructions have greatly improved our understanding on the climate change in terrestrial environments in the Northern Hemisphere, thanks for the technical improvements using paleo-proxies (fossils) and Earth System modelling. Progress has been made largely in regional scales, and most recently, data cover partly allows for a continent-wide study and interpretation of paleoclimate and vegetation patterns, e.g. between single regions of Eurasia covered by the NECLIME – Neogene Climate of Eurasia network. To get an insight on the Cenozoic climate change in a larger scale and/or bring multiple results from different fields, we invite contributions based on paleo-proxies and modelling experiment dealing with Cenozoic terrestrial climates in the Northern Hemisphere. This session is sponsored by the Paleontological Society.

Scientific Categories:

Paleoclimatology/Paleoceanography, Paleontology, Paleoecology/Taphonomy, Paleontology, Diversity, Extinction, Origination

Description:

The session will address the Cenozoic terrestrial climate reconstructions in the Northern Hemisphere by integrating evidence from various paleo-proxies and modeling experiments.

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