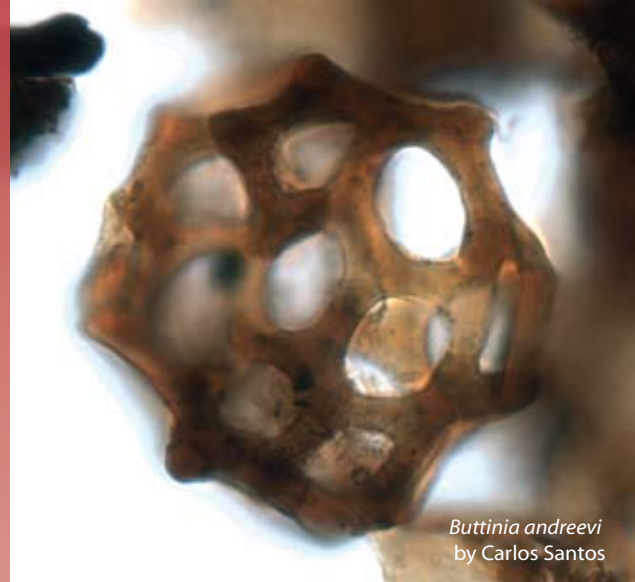


# AASP- THE PALYNOLOGICAL SOCIETY



*Buttinia andreevi*  
by Carlos Santos



## NEWSLETTER



**December 2010**  
**Volume 43, Number 4**



# A.A.S.P. NEWSLETTER

Published Quarterly by the AASP - The Palynological Society

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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* (annually), 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 next issues of the newsletter is **February 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 new President*

By Paul Strother

We are in a young field of scientific endeavor – one in which it is possible to explore and make discoveries directly that are completely new to science. There is a history to Paleontology that starts with the discovery of fossils as shells and bones going back to the dawn science, but we are in a field that is comparatively recent – Pollen Analysis began in the early 20<sup>th</sup> century, the rise of stratigraphic palynology began in earnest around mid-century with 1967 marking the beginning of the association. We are still in the presence of some of the people who have helped to define the fundamentals of the science of Palynology – Graham Williams, well I don't know for sure what he's famous for, but it must have been something good, and original. Vaughn Bryant literally invented a whole new discipline of forensic palynology. There are only four papers published on Cambrian acritarchs from the United States. And three of them are by Gordon Wood. I can assure you that there are more Cambrian acritarchs to be found in the United States, many of which will constitute new genera. It's far worse in the Precambrian – we have no idea of the enormity of this area of research which could be fundamental to some very basic aspects of the study of earth history. Emanuele Javaux and her colleagues at Liège (and elsewhere) have earlier this year described palynomorphs from the Moodies Group in South Africa. There are vesicular microfossils, many over 100  $\mu\text{m}$  in diameter, from sediments dated to 3.2 Ga. That is a fundamental and horribly confusing discovery, because they are far too big to be bacteria and far too old to be eukaryotes. This discovery challenges some of the underlying assumptions that we all make when interpreting palynological remains. Not everything we recover in palynological preparations need be

originally composed of special resistant organic compounds like sporopollenin or some such. In the Precambrian, we may be dealing with a wide range of refractory organic matter. I, myself work on cryptospores, a group that wasn't even named until 1984 and the problems with working on cryptospores is that we haven't even begun to tackle the systematics of this group in any serious way. So we are lucky to be in an "Age of Exploration" and of new discovery.

Palynology can matter. It can be fundamental in determining scientifically the floral composition of ancient plant communities, beginning with Archaeology, extending through the Pleistocene and into the world of climate change. The world of academics has perhaps always been subject to popular trends, but my guess is that climate change science is already a discipline and I would hope that Palynology is included in the list of primary disciplines that contribute to it and define it. This brings me to my second point about the association which is that we are charged with "palynology and public awareness", which, in this case, is not really about educating the public at large – it is about keeping palynology alive as a legitimate scientific discipline. Standard university courses in palynology are declining. The Palynological Society has a role to play in providing awareness to the graduate (and undergraduate) populations of students in disciplines which are touched by palynology – Paleontology, Paleobiology, Botany, Sedimentary and Stratigraphic Geology, Archeology. So I think we have an obligation as a society to serve as a conduit to the discipline for those students who may be unaware of palynology. Obviously we would hope to do this through increased student membership,

but perhaps we should increase our exposure at some national meeting that are attended by lots of students – The Geological Society of America and the Botanical Society of America.

**S**o I am proposing that we support sending a booth to the BSA in addition to GSA. I think we should put together a set of course notes and provide a workshop/short course at GSA. The goal of such a short course would be to provide basic awareness of palynology as a discipline with access to the literature and resources that might enable a student to utilize palynological research in his or her own developing research. Very few students are in a situation where he or she can walk down the hall of the department and talk to a palynologist. I think we have an obligation to provide some access to the discipline, and I think these larger meetings are the most effective way to do this.

**A**s a small society, joining together with other small societies to achieve a critical mass for a meeting makes a lot of sense. We will be doing this again next year in Southampton where we will meet with the Micropalaeontological Society and the Palynology Specialist Group of the Linnean Society. The last meeting we held jointly in England was one of our most successful meetings in terms of attendance. The next few years of annual meetings will continue to build on this strength.

**P**lease contact any of the board members with your ideas, complaints and suggestions – the board is completely open to hearing from all members. This is your society, and it is up to all of us to make it work. Volunteer.

## Managing Editor's report

I am now putting together *Palynology* Volume 34, Part 2 which will be published in early December. It comprises seven technical articles and will be around 140 pages. At the time of writing the final running order has not been decided.

The online manuscript submission system for *Palynology* went live on 1<sup>st</sup> November. From now on, all manuscripts should be submitted online. A separate article in this Newsletter describes this new scenario in detail. The system should be very familiar to those who have submitted online to other journals. However if you would like detailed instructions, either download two pdfs from: <http://www.palynology.org/content/Palynology/TFOnlineSubmission.pdf>. The “help files” are attached at the end of the text. Alternatively email me direct and I will pass them on to you. Furthermore, please feel free to contact me for any specific advice or to provide feedback.

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# ONLINE MANUSCRIPT SUBMISSION TO *PALYNOLOGY*

*Palynology* is now ready to begin accepting new submissions via our new electronic submission and review system, ScholarOne Manuscripts (formerly Manuscript Central). Direct submission to the editor will be discontinued from the 'go-live' date.

ScholarOne Manuscripts allows direct submission to a proven online manuscript management system. It is an Internet-based application that facilitates online submission and peer review. The system is entirely web-based, meaning it can be accessed via any web browser, on any internet-ready PC, anywhere in the world without the hassle of downloading software.

Online submission and peer review greatly reduces the administrative paperwork for all parties. ScholarOne Manuscripts will greatly simplify the assignment of reviewers, keep track of progress, and automate much of the dialogue between authors, editors and referees.

From the 'go-live' date, all editorial work pertaining to *Palynology* will be undertaken using ScholarOne Manuscripts, which brings many significant advantages, making it even easier to submit draft papers and track progress through the peer review process. ScholarOne Manuscripts eliminates postal delays and streamlines peer reviews, making it more transparent and a great deal easier for authors and editors. Electronic systems can seem somewhat impersonal, but *Palynology* has built strong relationships with authors and reviewers, and we intend to remain a friendly and approachable journal.

ScholarOne Manuscripts is extremely easy to use. The Manuscript Central site has a unique Web address (www.). To enter the author center for *Palynology*, enter the web address in the address field of your browser, or click the hyperlink on the AASP website. The journal's log in page will open and you should follow the step-by-step instructions for creating your account. Online training is available through the 'get help now' link. When you log in, you are taken to the welcome page. Here you see links to all of the role centers you have permissions for. To access your author dashboard page, click the link to open it. This is where you begin the manuscript submission process. Full instructions appear during the process and guides are available as pdf files via the AASP website or by request from the editor. There is also a help service available by telephone or email.

We look forward to your continued support of the journal, and to receiving your manuscripts.

James B. Riding  
Managing Editor  
AASP – The Palynological Society

E-mail:  
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editor@palynology.org

September 2010



Check out this excellent palynological website brought to our attention by Vaughn Bryant (TAMU).

<http://www.plant.csdb.cn/sdb/teyou/ty.htm>





## A new perspective on *Acer pseudoplatanus* A discussion with architect Floyd Kenneth Stein

A few months ago, I contacted an amazing artist to ask him some questions about this truly amazing piece of art that will be a lasting legacy to our research field. Here are Floyd Stein's answers. I hope you will enjoy reading about his unique philosophy as much as I did.  
Sophie Warny, NL editor.

### On me.

Born in St. Louis. I am an architect – with degree from Washinton University in St. Louis and some undergrad studies at Columbia Univ. in NYCity. I have been living and working in Copenhagen since 1968. (Yes, I am that old! 70 this year). I have taught and done research at the School of Architecture at the Royal Institute of Art in Copenhagen. Main area of work has been ecological design. Published several books (in Danish) on ecology and building/architecture.

My work with ecology led me into ecovillage design where I have designed approx. ten ecovillages and landscape plans of which four have been realized. Simultaneously I have worked as an artist, using nature's dynamics – patterns and random occurances. It was through this work that my collaboration with the City of Odense began.

My collaboration with the city of Odense goes back to 2005 when I was asked to submit designs for a music park – one of five "green spaces." A green space with large structures which make sound – either by natural fources (eg. the wind) or children who play with and on them. My collaboration has been with Jørgen Edgar Hansen, Dept. for roads, parks, and the environment.

### A new concept for designing public areas.

"Højby Commons – Fringe"

Højby is a small town, incorporated into the city of Odense (pop. ca. 250,000 – the birthplace of Hans Christian Andersen).

Surrounding the music play area Jørgen Edgar Hansen has attempted to create a dynamic balance between plants, humans, and larger farm animals (especially cows). The ultimate natural park and play area in a natural setting. It is a process that will take many years to mature. Trees have been planted randomly over the more than 20 ha farmland. As the trees become harty enough to fend for themselves, grazing cattle will be let in, which will result in groups of trees surviving and others not, leaving open meadow areas between the groves of *Crataegus monogyna*, various *Salix* and *Prunus*, *Quercus roburm*, as well as berries and nuts, and including bushes e.g. *Prunus cerasifera*, *Prunus*



*spinosa*, *Rosa canina*, and various evergreens. Then humans will be admitted into this "work in progress." The idea being that all components in this design will do what they always do in a dynamic relationship with each other. Humans make art, play, picnic and wander through nature. This will also be an edible landscape. Also for humans.

The first sign of "something else" (is it art or part of the natural landscape?) are the four pollen grains (*Acer pseudoplatanus*, maple) as if they have "fallen" down from the sky, as they usually do. But these are giant sculptures – each measuring 100,000 times a real *Acer pseudoplatanus* ( $48\mu$ ) or the size of a van (4,8 meters). The maple is quite invasive in the Danish landscape. It was first introduced as a decorative park and road tree. The island, Ærø, in the southern Danish archipelago is named for this tree which covered the entire island and the wood was used for making wooden shoes for export – until there were no more maples anywhere on the island!

#### The stories we wanted to tell.

We have worked with projects for giant plants and plant parts as part of playgrounds, but this time understanding the biology would just be by being with the pollen. The pollen grain is meant to be as realistic as possible. This was a very exciting balancing act between producing a sculpture that could survive changing seasons, active children and vandalism, while being as realistic as possible. Thus the choice of materials was often a balance between what was most like the real thing and what could survive wind, rain, frost and vandalism.

For example, I wanted to show the details of the process called harmonogamy, where the exine allows the moisture from the stamen to penetrate into the internal pollen

thus allowing the pollen to expand and prepare it for sending the pollen tube out and down to the ovarium. But this detail would have been structurally impossible due to the freezing and thawing of water in these holes. We have thus chosen to depict the pollen grain in its dehydrated state, i.e. long and



narrow ( $48 \times 25 \mu$ ) instead. But the realism is upheld as close as possible by covering the surface with microscopic glass pearls, which make the surface appear to be moist and sticky. (The glass pearls are those used to make road signs reflect light from headlights).

We wanted to create something that was as life-like as possible. This thing is the masculine part of the reproductive process in the plant world and we wanted to keep the appearance of a living thing as closely as possible. We wanted the viewer to feel that he or she was approaching something that had life inside, and was waiting for the next thing to happen.

As one of the many pollen experts we were in touch with expressed: "What a joy to experience a pollen grain without the filter of a microscope!"

#### The process

The outer surface of the tectum is made of glass fiber reinforced concrete. The craftsmen who worked on them were experienced in building replicas of rocks for the local Zoo. But this process required devising new tools and new methods, for example, of rotating the entire pollen grain. The many tons had to be rotated so that they could reach the entire surface from above as it were. Here the local metal contractor, who has invented many things for us in other projects, placed the internal structure of steel spants and expanded metal mesh on a central pipe, which could be rotated with a motor and a chain. The entire construction was then placed onto a standard dumpster frame and could be transported from the metal shop to the concrete shop, and so on. One of the craftsmen designed ingenious half-pipe-tools which could form the ca. ten centimeter thick striate pattern



From drawings, models in various scales, tests and finally production in the shop in "full scale", there was a constant cross check to make sure the final product would be as close as possible to a "real" pollen grain.

A large, golden-brown, ribbed sculpture, possibly a piece of art or a natural formation, sits in a grassy field. The sculpture has a complex, organic shape with many concentric, wavy ridges. In the background, there are some buildings and trees under a clear blue sky.

A large, abstract sculpture made of yellow, ribbed material, resembling a giant knot or a large, textured rock, situated in a grassy field under a blue sky with clouds. A bicycle is parked nearby.

Pollen Terminology, Hesse, M., et. al., Springer Verlag, Vienna, 2009

Textbook of Pollen Analysis, Fægri, K., Iversen, J., Copenhagen, 1964

- Janne Sommer, palynologist, Astma-Allergy Association in Denmark
- Alan Graham, Ph.D, Missouri Botanical Garden, St. Louis, Mo.
- Kari Loe Hjelle, University of Bergen, Norway
- Dr. Åslög Dahl, R&D-manager. Göteborgs University
- Charlie Christensen and Morten Mortensen, National Museum, Copenhagen, Denmark

[illegible]





## IN AND OUT OF AFRICA

David M. Jarzen & Susan A. Jarzen  
Florida Museum of Natural History,  
Gainesville, Florida

Margaret D. Lowman  
North Carolina Museum of Natural  
Sciences, Raleigh NC

An Ethiopian church forested area near Bahir Dar. Note the encroaching agriculture and the rapidly eroding stream to the north.

It was a hot and another muggy day in Florida as we left Orlando for Washington DC, and eventually, Ethiopia for a scientific expedition that would change the way we thought of Africa forever. We were a part of a National Geographic expedition, organized by the T.R.E.E. Foundation (Tree Research, Exploration and Education, [www.treefoundation.org](http://www.treefoundation.org)) of Sarasota, Florida. We and 12 other scientists from the US, Great Britain and Canada would spend the next 14 days in the afro-montane regions of northern Ethiopia around the Bahir Dar and Debre Tabor regions to study the insect and important tree taxa biodiversity in the last remaining, near virgin, forests associated with the many Christian Orthodox Tewahedo Churches in the area.

It was the rainy season, so when we arrived in Ethiopia we were not surprised to experience the colder and much wetter climate. Our work was the first part of at least a several season study to record for the first time the insect biodiversity (primarily beetles) and the important (based on economic value) tree species remaining in these

forests. Details of the project and the importance of regeneration of tree species in these forests is outlined in Wassie et al. (2009). The Churches are a central and very important part of the culture of the Ethiopian Christians, and as such the forests surrounding the churches are “preserved” and “sacred.” Yet all is not well with these forests as may be seen in the aerial photograph supplied by Google Earth™. The forests are shrinking, and are surrounded by agricultural land—marginal land expected to grow crops to feed the expanding population of Ethiopia. The agricultural areas have created erosion runoff features that channel the water and nutrients away from the forests. The grazing cattle and goats browse in the forests destroying the ground cover, and thus hopes for tree regeneration. The inhabitants of the forests, the church faithful, use the forests for many of their needs, including as a toilet facility.... anywhere, anytime. The increase in human feces is a notable consequence and was easily detected from our surveys by the relatively high numbers of dung beetles specific to human waste. The forests are in danger of being destroyed. Our task, albeit perhaps

now too late, was to record the insect (pollinator) species and the important tree taxa in the forests. Our long-term goal is to educate the children about the importance of ecosystem services provided by the church forests, and engage them in insect surveys, since they are the future stewards of these shrinking conservation areas.



*David Jarzen assists Claire Ozanne (Roehampton University, London, England) in retrieving insects from her canopy trap at the Zhara Church forest.*

We chose to study the insects, as this group is always a fair indicator of the “health” or “non-health” of an area. The trees are of course the important part of the forest, and some of the trees are especially important as sources of medicinal products. For these reasons, our efforts were concentrated on exploring the canopy and forest floor of two Church forests, Zhara and Debresena. Some of the team members climbed into the canopy, others sent insect traps into the canopy via rigging, while others were content to examine the lower portions of the forest and the floor where the dung beetles were carrying on their important task of cleaning the area of feces. We were not ‘intruders’ into this world of church and forest, as the priests and bishops had invited us as a part of their willingness to learn more of their forests and to share some of their knowledge with us. The children, both teens and young adults were eager to find out what we were doing, and

supplied local names to the plants, insects and birds we recorded.

It would seem that a simple and direct solution to the problem of encroaching agriculture and grazing into the forested areas would be to fence in the forests. This in part is exactly what has been suggested last year to the Bishops in a workshop facilitated by our team leaders Drs. Wassie and Lowman, and has been accomplished in some areas. However, fences cost money, take time to build, and from our observations, only partly cover the problem. Fences break down and cattle move in once again. In third world countries, things move slowly, and things take time. But to educate the people of the forest, the Church people, and especially the children, the next stewards of the forest, may in fact create a long-lasting philosophy that will protect these forests for at least another generation. We specifically targeted the Sunday School children as a gesture of “goodwill,” and good public relations.

The churches of course play the central role in the lives of the Christian people of Ethiopia. Life is centered around the church. In fact our visit coincided with a religious festival, and the churches were crowded and the masses celebrated with day long fasting and chanting, which prevailed the entire time of our visit. The chanting continued well into the night hours and after only a very short sleep period, resumed at about 4:30 in the morning. The churches are round structures, with a central small circle reserved for the Priests and Bishops, and also the place where a replica of the Arc of the Covenant is kept. The Church believes that Ethiopia is the place where the true Arc of the Covenant is located, and to keep the actual place a secret, all churches (there are thousands of them) have a replica inside the church so that the location of the authentic one cannot be located. Outside this inner circle is another larger area for the faithful. A quiet area and somewhat dark as little light enters the church. We were allowed inside the outer circle after we had removed our shoes and promised not to take pictures.



Working in the mountains of Ethiopia during the rainy season is best left to the younger generation. The elevation at times was near 4000 meters, where the oxygen levels are less concentrated, and the breathing becomes a little difficult. Working in the rainy season also took its toll, as walking and climbing through the sometimes rugged terrain became an art, and challenge. For most of us the slipping and sliding and “cussing” became part of the day’s adventure. We collected data, recorded on digital images the entire project, and along the way managed to identify nearly 200 bird species, most of which were of course new to our “life-lists.” The trees were not spectacular, but of great interest, as many were important as producers of medicinal products. One in particular is a species in the Rose family, related to the plums, cherries and peaches, *Prunus africana*. Of

importance here is that an extract of the bark of this tree has been used successfully to treat benign prostatic hyperplasia, (enlarged prostate glands not affected by cancerous tissues). However the collection of the mature bark for the extract, has in recent years, placed the tree in danger of extinction. The economic value however to Ethiopia (and other African countries) has increased production of cultivated trees grown strictly for the removal of the bark. This practice may save the tree in the wild. It may be of interest that Marchant and Taylor (1997) have reported the occurrence of pollen of *Prunus* comparable to *P. africana* in sediments from Uganda, dated as far back as 43,000 ybp., showing that this species has a long history in some African countries.

The future of these church forests remains to be seen. Some of the team scientists are already planning a return visit to the region during the dry season in January or February. A closer, more detailed study of the fauna and flora, over several years, covering wet and dry seasonal changes of these forests is needed to fully understand the nature of the forests and strategies for their conservation. Whether these people allow their forests to remain intact, or cut into small plots as they are now will determine the fate of their culture. They

may eventually go the route of Easter Island or other cultures that neglected their forest biodiversity.

On our last day at one of the Church forests, we met with the Head Priest, who wanted to learn of our work in more detail. The priests are second only to the bishops in the “chain-of-command” and the one all the people respect and obey.

He is the most respected person in the Church community and surrounding area. We gathered and sat around his small stick and thatch home, and, through an interpreter, told him of our project to study the biodiversity of the insects and trees. We told him we were doing this in order to be able to better predict regeneration strategies and the future of the forests. After our presentation, the Priest paused, then in his language (Amharic), he thanked us for the science we were doing. He appreciated our concern for the welfare of the forests and the animals and plants that they all knew and loved. He continued for another 10 minutes or so, and then in a voice that changed to very serious he said something that we felt was important to him, and something that he wanted to leave with us. He



*Local children were eager to learn and help us count the many and diverse insects we observed.*



noted that although his “educated” followers advised him of the importance of biodiversity studies, he wanted to tell us what he really needed from the outside world....Toilets! We had nothing in response. After some thought however, we decided that in our report to the National Geographic Society, we would suggest and perhaps urge them to cooperate with WHO (World Health Organization) in a first attempt to install pit toilets in some of the church forests. Time will tell of our success.

We left Ethiopia with a feeling of what these people need to continue the millennia of existence they have already known. After all this is the land of *Ardipithicus* and, just to the south, the land of Lucy. Yet, as a third-world country, they will need to modify their cultures and adapt to the needs of their growing population. Everywhere we travelled, no matter how far from towns or villages, there were people to be seen, tending to their cattle and crops. Even in the mountainous regions, where forests once covered the slopes and valleys of this beautiful land, the use of the land for crops was alarmingly common. We read about the poverty of these and other African people, yet to see the people first hand is to really feel the problems. Amazingly, however, the people of the areas we saw, were a happy and healthy looking people. No one complained, and all were eager to see us, and to help us with our work. We left Ethiopia informed.

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*Some team members near the church at Zhara.*

# EXTREME PALYNOLOGIST HOBBIES

**Congratulations to fellow palynologists for their recent athletic accomplishments.**



*Mera Peak was climbed by Bruce Tocher at 06:50 on the 16th October 2010. This mountain summits at 6500m. He told me before he left that he intended to do it without oxygen.*

*Judith Lentin*



*Just for fun, I've attached a screen grab of a photo of me and my horse Tahoe as we scaled Cougar Rock at the 55th running of the Tevis 100 miles-in-a-day ride the end of July. We completed the ride, which is an amazing accomplishment. Less than 50% of those who start this, the oldest and most difficult sanctioned endurance race in the world, actually complete this within the 24 hr time limit and with their horse being deemed "fit to continue" by the ride veterinarians. We had a ball, and I'm in the process of writing up my experience if anyone is interested in reading it. Here's a link to a Youtube short on the Tevis. HRTV had 6 film crews there and made a documentary which aired last Sunday. My horse and I were in the documentary, but only for a brief time on screen. Here's the Youtube short link which explains a bit about the ride: <http://www.youtube.com/watch?v=-7KXPTHjqTo>*

*Sharma Gaponoff*



## ANNOUNCEMENTS

### PhD position in marine palynology and biogeochemistry

Research Unit of Palaeontology

Ghent University - Belgium

**Miocene climate variations —**

**the marine and terrestrial biotic response during key periods**

Research subject — A stepwise, global cooling of the climate occurred during Miocene times. These punctuated cooling events are known as the Mi-events and lasted only for a few 100 k.y. The Mi-events had a drastic effect on marine primary producers and on terrestrial ecosystems. The proposed research intends to elucidate on a very detailed level the tempo and mode of the effects of the global cooling events on an important marine primary producer such as dinoflagellates, and to assess to what degree the biotic responses in the terrestrial and marine realm are or are not in phase. The study areas are the Porcupine Basin (IODP Leg 307) off southwestern Ireland and the Ceara Rise off Brazil (ODP Leg 154). A very high sample resolution (10 k.y. and less) is intended. The micropaleontological data will be validated against biogeochemical proxies such as the TEX86 and the unsaturation index UK'37 (proxies for paleotemperatures) and the BIT index (a proxy for the relative amount of soil and marine organic matter input in the depositional area).

Profile — We are looking for a highly motivated individual with an MSc (or equivalent degree) in geology, geobiology or biology, and with a strong interest in the Neogene. Research activities will include microscopy and biogeochemical analyses. A background in palynology, micropalaeontology and/or biogeochemistry is an advantage. Fluency in spoken and written English is required. Candidates should be able to work independently and in a team.

The successful candidate will be offered a full-time Ph.D. position for four years in a research project. The applicant must be eligible for PhD studies and will enrol in the Doctoral School Program of Ghent University. The candidate shall devote his or her time primarily to their own research studies.

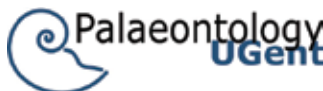
The palynological analysis will be carried out at the Research Unit of Palaeontology at Ghent University. Expertise in pollen analysis will be acquired in collaboration with Dr. T. Donders at TNO in Utrecht (The Netherlands). Biogeochemical analysis will be carried out at the Royal NIOZ (Texel, The Netherlands) in collaboration with Dr. S. Schouten.

How to apply — Please send a description of your past work, a statement of your research interests, a curriculum vitae (including grades, courses followed, the title of your master thesis and a list of any publications) as well as mail and e-mail addresses of two referees. Send these by email to [stephen.louwye@ugent.be](mailto:stephen.louwye@ugent.be)

Applications are accepted until the position is filled, but the applications should be received before February 1st, 2011. Students currently finishing their MSc are also invited to apply. The research project must commence during 2011.

For further informal enquiries on the position please contact:

Prof. Dr. Stephen Louwye  
Research Unit Palaeontology – WE13  
Krijgslaan 281/S8  
9000 Gent  
Belgium  
+32.(0)9.264 46 11  
[stephen.louwye@ugent.be](mailto:stephen.louwye@ugent.be)  
<http://www.paleo.ugent.be/index.php>



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## **New Paleoecology listserv**

The paleoecology section of the Ecological Society of America has a new moderated email listserv ([esa-paleoecology-section@googlegroups.com](mailto:esa-paleoecology-section@googlegroups.com) <<mailto:esa-paleoecology-section@googlegroups.com>> ). You may add yourself to the listserv at the section website ([esa.org/paleoecology](http://esa.org/paleoecology) <<http://esa.org/paleoecology>> ). The old email list (yahoo groups) is being discontinued. Please also inform your students and colleagues about the new listserv. You do not need to be a member of the section to join the listserv.

David Nelson, Assistant Professor  
University of Maryland Center for Environmental Science  
Appalachian Laboratory  
301 Braddock Rd., Frostburg, MD 21532  
Phone: 301-689-7171  
Email: [dmnelson@al.umces.edu](mailto:dmnelson@al.umces.edu)  
Web: <http://www.umces.edu/al/people/dnelson>



## **Past in Pictures...**

The gentleman Robert Haydn Tschudy (1908 - 1986) at Cambridge, England for the 5th. IPC, 1980.

Photo: D.M. Jarzen.



## OBITUARY: PAUL S. MARTIN

### Pleistocene Extinctions Expert Dies at 82

From Mari N. Jensen, College of Science, University of Arizona, Tucson, Ariz.  
520-626-9635, mnjensen@email.arizona.edu

Paul S. Martin, the University of Arizona geoscientist who developed the idea that overhunting drove North America's large Ice Age mammals extinct, died Sept. 13 at his home in Tucson, Ariz. He was 82.

"More than 40 years ago, Paul framed a scientific question: What was the role of humans in Pleistocene extinctions? It's the greatest "whodunit" in science," said Karl W. Flessa, a UA paleontologist and a long-time colleague of Martin's.

Martin insisted that early humans had hunted North America's Ice Age big game, including ground sloths, camels, mammoths and mastodons, to extinction.

"The issue has engaged generations of scientists, students and the general public ever since," said Flessa, professor and head of the UA department of geosciences. "Paul warmly welcomed both supporters and dissenters. I've never seen anything quite like it. It wasn't just a matter of disarming his opponents with kindness. Paul really wanted to see things the way his opponents saw them, in order to understand even more about his favorite topic - Pleistocene extinctions."

Vance Haynes, a UA professor emeritus of anthropology and geosciences, reiterated Martin's desire to learn from people with different viewpoints and his thirst for knowledge: "Unlike so many people who get infatuated with their own theories, he spent his professional career

inviting criticism. He put together two critical conferences about Pleistocene extinctions, and the volumes that came out of those were pace-setting."

Martin's wide-ranging interests made him an interdisciplinary researcher before interdisciplinary was a buzzword. Martin's work bridged ecology, anthropology, geosciences and paleontology in a way that had not been done before.

A native of Allentown, Penn., Martin earned a bachelor's degree in zoology from Cornell University in 1951. He earned his master's degree and doctorate in zoology from the University of Michigan in 1953 and 1956, respectively.

He was a postdoctoral researcher in biogeography at Yale University from 1955-56 and at the University of Montreal from 1956-57. He joined the UA as a research associate in the Geochronology Laboratories in 1957. He became an assistant professor in 1961 and rose through the ranks, becoming a professor of geosciences in 1968. He retired from the University as an emeritus professor of geosciences in 1989.

In addition to his studies of Pleistocene extinctions, Martin is also known worldwide for his and his students' research on the long-term ecological and climatic records contained in packrat middens. He and his students also studied paleoecology and paleo-



climate using other natural records, including pollen, tree rings and the vegetation preserved in fossilized ground sloth dung. The center of those studies was the UA's The Desert Laboratory, three buildings perched atop Tumamoc Hill, then just outside of Tucson and surrounded by desert.

The interdisciplinary nature of Martin's own research fueled a spirit of collaboration and creativity in the students from zoology, botany, geology and anthropology who gathered and conducted research on "The Hill," as people called it.

Former graduate student David W. Steadman said, "There were graduate students with highly varied backgrounds who did lots of fieldwork together and ate lunch together. ... All of us up there truly appreciated what we had. Nobody had to tell us that we had something special going."

The importance of going into the field to study the natural world was a crucial component of Martin's approach to research. His wife, Mary Kay O'Rourke, said, "A thing that is most remarkable about Paul's life is his vast array of field experience. ... He was all about the field work."

Martin's field trips were legendary because he inspired people to explore, enjoy and study the natural world. Steadman said, "I look back on those days with euphoria. He knew the best places to go, the neatest regions to explore. ... He made everybody, no matter what your background or your educational level or expertise, feel welcome and that they could contribute."

Martin's interest in the natural world started in childhood and was encouraged by his parents, Steadman said. Martin attended Cornell University to study zoology and fell in love with Mexico while on a bird-collecting field trip.

The trip began Martin's life-long interest in Mexico and in how tropical flora and fauna came to be. "He was smitten by the lifestyle of rural Mexicans and by the Mexican countryside," said Steadman, now associate director for collections and research at the Florida Museum of Natural History at the University of Florida in Gainesville. "There was something about Paul that put him in a really special good mood once he was south of the border."

Martin's devotion to field work and love of remote places was particularly notable because he had contracted polio in the early 1950s and often needed a cane or crutches to get around.

Once Martin and his wife visited Steadman at a remote field camp in the Galapagos accessible only by boat. Camp was a two-mile hike over lava and up a cliff.

"I questioned whether Paul could make it," Steadman said. "He said, 'I'm going to make it, don't wait for me.' ... After I don't know how many hours, here shows up Paul. Bloody -- there wasn't a place that wasn't cut. Bloody, sweaty and grinning from ear-to-ear."

Haynes said, "He was a remarkable person, and I thank my lucky stars that I was associated with him. He's going to leave a big hole in the profession."

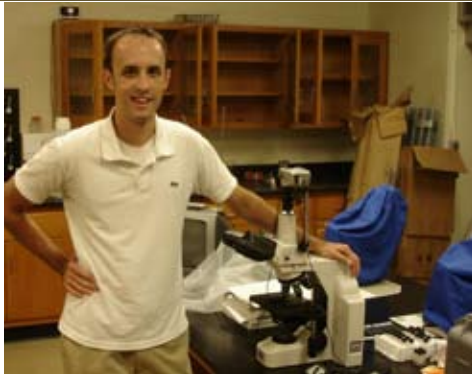
Martin is survived by his wife, Mary Kay O'Rourke, an associate professor of public health at the UA; his sons Andrew, Neil and Thomas; two nieces and four nephews; and two granddaughters.

Donations can be made to the Paul S. Martin Quaternary Studies Fund to support field work in Quaternary anthropology, ecology, geology and paleontology. Mailing address: Paul S. Martin Fund, Department of Geosciences, Gould-Simpson Building, University of Arizona, Tucson, AZ 85721. Checks should be made out to "Department of Geosciences, University of Arizona."



# AASP students: award and research updates

*AASP Student - Award: Pollen in cave guano piles and past-environment reconstruction  
(by Matt Batina (matthew.batina@eagles.usm.edu), University of Southern Mississippi)*



I am Matt Batina. My interests center around biogeography, generally using pollen to study long-term ecological patterns and processes, as well as its utility for climatology research. I also aspire to discover new ways that pollen can be applied within these areas, or combined with tools from other disciplines to conduct novel research.

The project I am working on under Dr. Carl Reese's direction investigates the potential for pollen in cave guano piles to be used for the study of past environments, or possibly even of bats. A comparison of pollen records from a preliminary pollen study I conducted on a guano pile in Round Spring Cavern near Eminence, Missouri and another pollen study from southern Missouri revealed notable discrepancies between the two assemblages. One of several possible explanations could be that the guano pollen represents localized pollen within the bats' foraging range, but no published pollen studies from the local area exist to compare with the guano record. We hope to better understand these differences by comparing higher-resolution pollen records from guano at Round Spring Cavern and sediment cores from basins near Eminence which are closer to the cave and within the bats' foraging range. This research is expected to contribute baseline information on the relationships between fossil pollen, vegetation, the bats, and their guano to further pollen in guano deposits as a viable proxy for paleoecological study. In June, two students and I visited the Eminence area to survey basins for coring. With Dr. Reese's assistance, two cores were extruded from the Sunklands Conservation Area using a Vibra corer that was generously loaned to us from Louisiana State University's Global Paleoecology Lab. A third core was also obtained from a pond on private property with a Livingstone piston corer. At this time, the cores are being processed for organic samples and pollen, and we hope to have preliminary results this fall.

I am very thankful for the support that the AASP has provided to my project with a student research scholarship.

*Student Research: Detecting solar cycles and high-frequency vegetation dynamics in the European Miocene (by Andrea Kern, Natural History Museum, Vienna).*



Fig.1. Reconstruction of Lake Pannon in recent central Europe. The red marked area covers both studied basins.

Andrea Kern<sup>a</sup>, Mathias Harzhauser<sup>a</sup>, Ali Soliman<sup>b</sup>, Werner E. Piller<sup>b</sup>

<sup>a</sup> Natural History Museum Vienna, Geological-Paleontological Department, Burgring 7, 1010 Vienna, Austria

<sup>b</sup> Institute of Earth Sciences, Graz University, Heinrichstrasse 26, 8010 Graz, Austria.

Reconstructing paleo-vegetation and paleo-climate based on fossil pollen is common in geo-science. Nevertheless, except for Quaternary records, it is still unusual to use pollen assemblages to reconstruct environmental shifts on millennial, centennial or even decadal timescales. This labor-intensive work, however, gives an insight into short term vegetation dynamics, which finally allows a precise evaluation of pale-climates.

High-resolution pollen analysis is the basic method in the current project, which is run at the Natural History Museum Vienna (Austria) and at the University Graz (Austria). The main data sources are deposits of an ancient brackish lake called Lake Pannon (Fig.1), which covered the Pannonian basins complex during the Late Miocene. For the analysis, unbioturbated deposits from cores are sampled with a sample distance of 1 cm (Fig.2). Additionally



Fig.2. Picture of the drilling of a 15-m-core at the clay pit of Hengersdorf in the Vienna Basin (November 2009).

to the analysis of terrestrial pollen, dinoflagellates cysts are quantitatively identified to achieve information on paleo-productivity and water chemistry. These data are supplemented by geochemical and geophysical data such as TOC, magnetic susceptibility and gamma radiation with the same resolution. The need of a well developed age model is obvious. Therefore, the studied cores were drilled in the intensively studied Styrian and Vienna basins in Austria (Fig.1). The presence of Milankovich cycles in the sedimentary records of these basins have been documented by *Lirer et al.* (2009) based on geophysical data from very long cores. These provide the stratigraphic backbone for our cores. Hence, depending on depositional environment and tectonic setting, the sampling strategy results in a resolution of 7–20 years for the different records – a resolution which has never been achieved so far for European Miocene lakes. Our aim is to link the detected environmental shifts on a centennial to decadal scale to these poorly understood sub-Milankovitch cycles. Due to the enormous amount of samples, only short cores of few meters can be studied. First pilot studies are published already

in *Harzhauser et al.* (2008) and *Kern et al.* (2010) and document the practicability of the method. An exceptional example of the fins scaled environmental shifts, which can be detected in the cores, is the currently completed core from Mataschen in the Styrian basin. The only 1-m-long core represents c. 1400 years of Tortonian time. Even a minor drop in mean annual precipitation resulted in a quick turnover in shoreline marsh vegetation within less than 200 years and dry adapted Cyperaceae pollen suddenly dominate over the Poaceae. Soon after, the marsh became completely drowned during a fast ingression of the lake. This lake level rise is clearly related to the rising annual rainfall, but has a delay of c. 40–60 years. As soon as the precipitation decreases again, the marsh can cope with the still ongoing transgression and forms a wide grass wetland around Lake Pannon again. The results suggest that mean annual precipitation was variable during the warm and humid Tortonian optimum on a decadal scale, whereas temperature remained fairly stable.

A second 15-m-long core from the Vienna Basin is studied to detect solar cycles. Three meters (300 samples) of this core will be studied in detail and the palynological results will be integrated in the full geophysical record. In addition, the total amount of ostracods is counted for the same samples. Already preliminary data reveal a clear offset between ostracods, reflecting lake bottom conditions, magnetic susceptibility, indicating oxygen levels below the sediment surface, and gamma log data, recording detrital input. Within the current age model, the signatures point to a cyclicity of c. 500, 625, and 2000 years. The offset and misfit between the various proxies suggest a quite complex system. During the project we hope to tackle these problems and to show potential linkages and feedback mechanisms between high frequency climate change and vegetation.

This study is supported by the FWF-Project P 21414-B16: Millennial- to centennial-scale vegetation dynamics and surface water productivity during the Late Miocene in and around Lake Pannon.

- Harzhauser, M., Kern, A., Soliman, A., Minati, K., Piller, W.E., Danielopol, D. Zuschin, M., 2008. Centennial- to decadal-scale environmental shifts in and around Lake Pannon (Vienna Basin) related to a major Late Miocene lake-level rise. *Palaeogeography, Palaeoclimatology, Palaeoecology*. doi:10.1016/j.palaeo.2008.09.003.
- Kern, A., Harzhauser, M., Mandic, O., Roetzel, R., Ćorić, S., Bruch, A.A., Zuschin, M., 2010. Millennial-scale vegetation dynamics in an estuary at the onset of the Miocene Climate Optimum. *Palaeogeography, Palaeoclimatology, Palaeoecology*, doi:10.1016/j.palaeo.2010.07.014.
- Lirer, F., Harzhauser, M., Pelosi, N., Piller, W.E., Schmid, H.P., Sprovieri, M., 2009. Astronomically forced teleconnection between Paratethyan and Mediterranean sediments during the Middle and Late Miocene. *Palaeogeography, Palaeoclimatology, Palaeoecology*, doi:10.1016/j.palaeo.2009.01.006.





## AASP Annual Meeting - Halifax September 2010

### Thank you for your participation!

#### Group picture:

Front Row (left to right): Jock McAndrews, Lee Bradley, Kazumi Matsuoka, Manuel Paez, Vaughn Bryant, Fred Rich, James White, Mathew Pound, Thomas Demchuk, Paul Strother. Middle: Vera Pospelova, Matt Stimson, Judy Skog, Naresh Mehrotra, Jen O'Keefe, Sandra Garzon, Kam-Biu Liu, Doreen Mkuu, Art Sweet, Bert van Helden, Jan Ford, Emma Msaky, Joyce Lucas-Clark, James Doyle, Lisa Neville, Francine McCarthy. Back Row: Jean-Nicolas Haas, Kenneth Mertens, Peter Giles, Rob Fensome, Awad Ibrahim, Peta Mudie, Rolf Mathewes, Chris Denison, Ian Harding, Andre Rochon, Karin Zonneveld, Martin Farley, Stephan Louwye, Lanny Fisk, Jennifer Galloway, Jim Riding



#### Field trip pictures:

Top left: Jim Doyle, Paul Strother and Melissa Grey (science and education coordinator at Joggins). Right: Jen O'Keefe by tree stump. Photos by Rob Fensome.



#### Business meeting pictures:

From left to right: Past president Joyce Lucas-Clark with president Paul Strother, former past-president Fred Rich, DOL Stephan Louwye, and Peta Mudie.



**Past meeting summary: XIV Argentine Symposium of Paleobotany and Palynology  
Mar del Plata, Argentina, 6 - 9 December 2009**

This four-day Symposium was organized by local researchers from the Universidad Nacional de Mar del Plata and CONICET, Argentina. These Paleobotany and Palynology symposia have been held for over thirty years now. Indeed, they have persisted and grown thanks to the individual effort of all the researchers committed to scientific investigation, especially in Paleobotany and Palynology. As a result, they have become notoriously enriched due not only to the increasing number of Argentine researchers interested but also to the large number of foreign scientists attending them.

The Symposium opened with 150 participants from Argentina as well as from Chile, Uruguay, Brazil, Venezuela, the United States, and Spain. It was co-sponsored by the CONICET, National Agency for Science Research and Technology, CIC, Universidad Nacional de Mar del Plata and Microlat.

One hundred twenty oral and poster presentations were given, which clearly shows the increasing interest of the researchers in participating in the Symposium, as well as the high quality and quantity of investigations being conducted. Three conferences were presented by guest researchers: “Advances and perspectives in palynological research of the Early Paleozoic” by Dr. C. Rubinstein from Argentina, “Biogeography and history of South American forests during the Cenozoic” by Dr. L.F. Hinojosa from Chile, and “Aerobiology, Science and Society” by Dr. J. Belmonte Soler from Spain.

Apart from the Paleozoic, Mesozoic, Paleogene, Neogene, Quaternary and modern paleobotany and palynology and Actinopalynology sessions, a special session on “New methodology in Paleobotany and Palynology: a look toward the future” was carried out, coordinated by Dr. I. Escapa. Besides, two meetings were developed during the Symposium: the “Second RESCEPP Meeting (South American network of Collections and Teaching of Paleobotany and Palynology)” coordinated by Dr. P.A. Souza (UFRGS; Porto Alegre, Brazil) and sponsored by CNPq and the “Fourth Argentine Meeting of Aerobiology” coordinated by Dra. F. Latorre. The Annual Meeting of the Latin American Association of Paleobotany and Palynology (ALPP) was also performed.

The Organization Committee managed a meeting wherein participants were given enough time for their presentations and the opportunity to discuss their own research projects and exchange ideas and opinions with peers and experienced researchers. All participants were also invited to enjoy the ice-breaker party in a typical place in Mar del Plata city.

The abstracts will be published in the on-line version of *Ameghiniana* (journal of the Argentine Paleontological Association [www.apaleontologica.org.ar](http://www.apaleontologica.org.ar)).

For details on the XIVSAPP please see: [www.xivsapp.com.ar](http://www.xivsapp.com.ar). The next Symposium meeting (XVSAPP) will probably be held at the Universidad del Nordeste, Corrientes, Argentina in 2012 or along with the XIII Brazilian Symposium of Paleobotany and Palynology in a common place to be confirmed, also in 2012.

Dr. Aldo R. Prieto  
XIVSAPP President





## AASP Annual Meeting - Southampton 2011



### AASP 44<sup>th</sup> Annual Meeting, Southampton, England. September 5-7, 2011.

This meeting will immediately follow DINO 9, which is to take place at the University of Liverpool 28 August-2 September. Two theaters have been made available for concurrent sessions. Provisions have also been made for meeting rooms, laboratories, etc. at the National Oceanography Centre, Southampton. This will be a joint meeting with The Micropalaeontological Society and the Linnean Society – Palynology Specialist Group.

Hotel accommodations are up to individuals to make, though there are many choices covering a range of costs. Student residences have been secured at area colleges and can provide very inexpensive lodging. The canteen at the National Oceanography Centre can provide breakfasts, and the HMS Warrior will be the venue for the banquet. It is docked in the Portsmouth Historic Dockyard.

Pre- and post-meeting day-long fieldtrips are being planned to the Dorset Jurassic coast and the Isle of Wight.

A variety of museum and galleries are in Southampton for additional entertainment, as well as many medieval cities, Stonehenge, and so forth. Registration will be handled by personnel at Southampton University. It is expected that registration will run about £ 100.

An online registration system should be available by the end of January.



**Report on the Pollen and Spore Master Class  
August 16-20, 2010  
Utrecht, The Netherlands**

Twenty-nine participants from all professional and academic backgrounds joined 11 instructors and organizers in Utrecht, NL for the premiere offering of the Pollen and Spore Master Class beginning on August 16th. The Class was hosted by the TNO (The Netherlands Geological Survey) which is situated on the Uithof Campus of Utrecht University. Participants from 11 countries covered the range of professionals, consultants/academics and students. The city of Utrecht offered a wonderful setting for the class with its large population of University students, its international culture, ease of public transportation, and abundance of great restaurants and drinking establishments.

The Class was originally designed to give students an opportunity to learn about terrestrial pollen and spore and their industrial applications, however, the range of topics covered industry case studies and applications as well as more academic endeavors. The majority of the Phanerozoic time period was covered in lectures, beginning with the late Paleozoic through the Mesozoic and Cenozoic, on to present-day limnology research. The Class was designed to present topics in a school-room lecture setting punctuated with hands-on microscope workshops. Most workshops though turned into additional lecture time, and this will be a point of discussion for the organizers and future versions of the Class.

The staff of the TNO, particularly Timme Donders are to be thanked for their organization and hosting of the Class. Included in the listing of significant TNO and University personnel involved in the Class were Roel Verrussel, Dirk Munsterman, Tom van Hoof, Andy Lotter, Wolfram Kuerschner and Marjolein Mullen-Pullow (LPP Foundation), Henk Visscher and Henk Brinkhuis.

The Monday AM started with lectures by Carlos Jaramillo (Smithsonian Tropical Research Institute) and Wolfram Kuerschner (Utrecht University) on pollen morphology and taxonomy, and major floral trends and evolution through the Phanerozoic. A brief lecture was provided by Andy Lotter (Utrecht University) who outlined various statistical and numerical methodologies used to interrogate palynofloral data. The morning ended with a lecture by Michael Stephenson (British Geological Survey) introducing the Paleozoic stratigraphy and palynology of the Middle East. The Monday PM continued with Michael as he worked through several case examples of applications of palynology in understanding the stratigraphy of the late Paleozoic Middle Eastern oil fields. The day ended with an Icebreaker at the Utrecht University Botanical Gardens. The late afternoon sun was shining as the Class participants enjoyed good beverages and delicious finger food. Class participants and Utrecht people enjoyed meeting each other in a relaxed atmosphere.

Tuesday was Mesozoic/Cenozoic day beginning with Wolfram Kuerschner (Utrecht University) describing

the Permian/Triassic extinction and general Triassic terrestrial palynology. Lectures by Jim Riding (British Geological Survey) and Roel Verruessel (TNO-Utrecht) explained in grand detail the pollen and spore succession through the middle Jurassic into the middle Cretaceous. The late workshop included lectures by Tom van Hoof (Mesozoic Eco-Groups) and Henk Visscher (Permian palynoflora).

Wednesday's lectures were brief. The morning started with a lecture by Thomas Demchuk (ConocoPhillips) outlining the diverse Cretaceous palynoflora of the North American Western Interior, including a short discussion of the K-T boundary and Paleocene. This was followed by Keith Richards providing a thorough and interesting discussion of the Cenozoic palynology of the Caspian region. Class participants then climbed onboard the bus for the ¾ day fieldtrip to the K-T boundary and type-Maastricht caves in southern Netherlands.

Upon arrival to Maastricht, the participants were given a presentation by Jan Smit and they viewed the exhibits in the museum accompanying these localities. A tour of the chalk and K-T boundary cave ensued. Participants donned hard hats and flash cameras to capture the subterranean exposures of the K-T boundary. The fieldtrip ended with a magnificent dinner held within the chalk caves. Excellent food and beverage was enjoyed by all.

Thursday was tropical day, beginning with lectures by Carlos Jaramillo on the diverse nature of tropical Cenozoic palynology, and a lecture by Robert Morley (Palynova, UK) regarding aspects of tropical pollen/spore production, dispersal and preservation. Mercedes Pramparo provided a thorough overview of South American Meso- and Cenozoic palynostratigraphy, concentrating on Argentina and surrounding regions. The afternoon lectures were continued by Robert Morley as he worked through the Neogene palynology of Southeast Asia and West Africa (Nigeria) with numerous examples of how palynology can be used in a sequence stratigraphic and paleoclimatic context. The day ended with continued lectures of the applicability of palynology in discerning sequence stratigraphic systems tracts and paleoclimatic fluctuations.

Friday lectures started with Guy Harrington providing a detailed overview of high-latitude Cenozoic pollen

stratigraphy (Europe and North America), as well as an overview of increasingly significant Paleogene from the Gulf of Mexico. Quaternary and Recent palynology was the topic for the rest of the day Friday. Timme Donders outlined the Quaternary palynology of Europe, as well as explaining global paleoclimatic trends and giving examples of varied Quaternary vegetational/palynofloral types. The afternoon included lectures by Andy Lotter on Recent/Holocene palynology particularly related to paleoclimatic and anthropogenic trends. Examples were given from recent limnological coring expeditions in Central Europe. The day and week ended with beverages and finger food in the atrium of the TNO building as participants said their goodbyes to each other.

The organizers of this Class included Timme Donders (TNO), James Eldrett (Shell, UK) and Thomas Demchuk (ConocoPhillips, USA) and the financial support of Shell (UK), ConocoPhillips (USA) and Hess Corp. (USA: David Pocknall) are gratefully acknowledged. Many thanks are also bestowed upon the numerous instructors who took time to give lectures of significance during the week of the Class. Finally, thanks to the 29 participants that found time in their busy summers to add significantly to the discussions and success of the Class. We sincerely hope they return to their place of employment and research and utilize the knowledge they gained from the Class. The hope is to run this Class every two years, primarily in Utrecht, but also perhaps in the United States as funds and interest in participation allow. The organizers (and participants) believe this initial offering of the Class was a great success, and the next versions will only get better.

Regards,  
Thomas D. Demchuk (ConocoPhillips)  
Timme Donders (TNO-Utrecht)  
James Eldrett (Shell-UK)