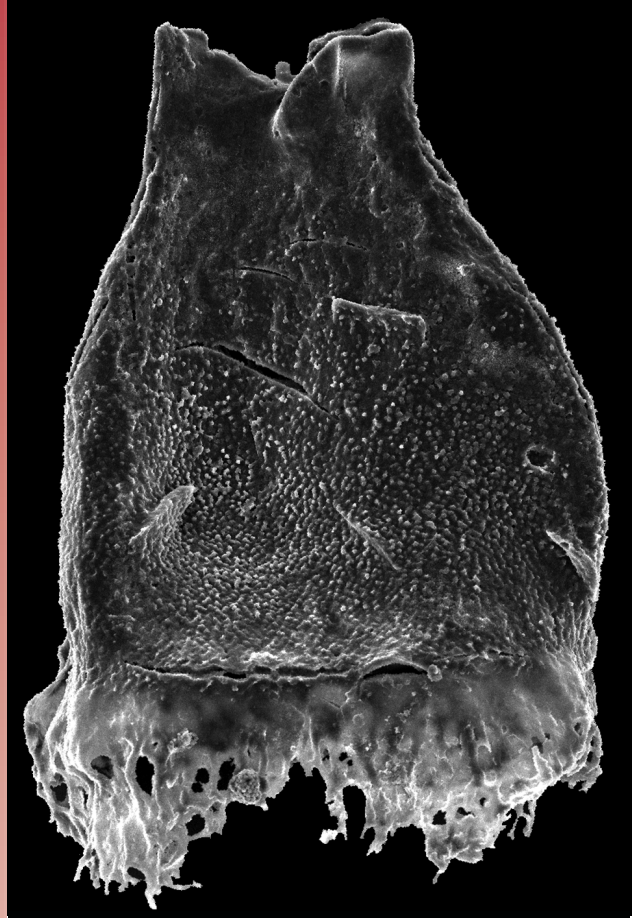
AASP-
THE
PALYNOLOGICAL
SOCIETY



Anthochitina sp.
by Susana de la Puente, Argentina

NEWSLETTER

March 2014
Volume 47, Number 1

Published Quarterly by AASP — The Palynological Society

AASP-TPS NEWSLETTER

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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.

AASP Scientific Medal recipients
Professor William R. Evitt (awarded 1982)
Professor William G. Chaloner (awarded 1984)
Dr. Lewis E. Stover (awarded 1988)
Dr. Graham Lee Williams (awarded 1996)
Dr. Hans Gocht (awarded 1996)
Professor Svein B. Manum (awarded 2002)
Professor Barrie Dale (awarded 2004)
Dr. David Wall (awarded 2004)
Dr. Robin Helby (awarded 2005)
Dr. Satish K. Srivastava (awarded 2006)
Professor Estella B. Leopold (awarded 2013)

AASP Honorary Members
Professor Dr. Alfred Eisenack (elected 1975)
Dr. William S. Hoffmeister (elected 1975)
Professor Leonard R. Wilson (elected 1975)
Professor Knut Faegri (elected 1977)
Professor Charles Downie (elected 1982)
Professor William R. Evitt (elected 1989)
Professor Lucy M. Cranwell (elected 1989)
Dr. Tamara F. Vozzhennikova (elected 1990)
Professor Aureal T. Cross (elected 1991)
Dr. Robert T. Clarke (awarded 2002)
Professor Vaughn Bryant (awarded 2005)
Professor Alfred Traverse (awarded 2005)
Professor Bernard Owens (awarded 2011)
Dr. John E. Williams (awarded 2013)
Dr. Paul W. Nygreen (awarded 2013)

AASP Board of Directors Award recipient
Dr. Robert T. Clarke (awarded 1994)

Teaching medal recipients
Professor Aureal T. Cross (awarded 1999)
Professor Alfred Traverse (awarded 2001)
Professor Bill Evitt (awarded 2006)
Professor Vaughn M. Bryant (awarded 2013)

AASP Distinguished Service Award recipients
Dr. Robert T. Clarke (awarded 1978)
Dr. Norman J. Norton (awarded 1978)
Dr. Jack D. Burgess (awarded 1982)
Dr. Richard W. Hedlund (awarded 1982)
Dr. John A. Clendening (awarded 1987)
Dr. Kenneth M. Piel (awarded 1990)
Dr. Gordon D. Wood (awarded 1993)
Dr. Jan Jansonius (awarded 1995)
Dr. D. Colin McGregor (awarded 1995)
Professor John H. Wrenn (awarded 1998)
Professor Vaughn M. Bryant (awarded 1999)
Dr. Donald W. Engelhardt (awarded 2000)
Dr. David T. Pocknall (awarded 2005)
Dr. David K. Goodman (awarded 2005)
Professor Owen K. Davis (awarded 2005)
Dr. Thomas Demchuk (awarded 2009)

AASP-TPS NEWSLETTER

Published Quarterly by AASP - The Palynological Society

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Volume 47, Number 1
Sophie Warny, Editor

AASP BOOK REVIEW EDITOR

POSITION OPEN - PLEASE SEND LETTER OF INTEREST TO SWARNY@LSU.EDU

AASP WEBMASTER

Mohamed Zobaa, mohamed.zobaa@fsc.bu.edu.eg, website: http://www.palynology.org

AASP NEWSLETTER EDITOR

Sophie Warny, swarny@lsu.edu, Department of Geology and Geophysics & Museum of Natural Science, Louisiana State University, E235 Howe Russell Geoscience Complex, Baton Rouge, LA 70803, USA.

The AASP-TPS 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. 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 **MAY 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

Santa Claus has come and gone (leaving me only a lump of coal). The New Year blew in while I was sleeping. The Easter Bunny is on his way. It must be time for an encouraging word from the AASP President. Short version/Abstract: Yes, I'm still having fun. The workload is *not* overwhelming, not yet anyway. I hope that it doesn't change any time soon.

But there has been one big change since my last message; we're now living in 2014. I read recently that a university president much younger than me said: "*I am too old and jaded to get excited anymore about New Year's Eve and resolutions*." Still, there is something special about a new year, a clean slate, a brand new highway to travel.

Compared with the nearly 50-year history of AASP, what will 2014 hold? Will it be a good year? What crises will we face? What will be recorded in the history book of time? I'm not a prophet or even a good guesser, but I can easily predict that we will have a successful 47th annual meeting in Mendoza, Argentina. More information about that meeting can be found elsewhere in this Newsletter and also on our website palynology.org. Are you planning to go? If not, why not? Confused? Don't be; just plan to join us in Mendoza. You'll be sorry if you don't.

I'm excited about what 2014 might hold -- eager, but not even a little bit anxious. The organization is thriving, in a sound financial condition, and we are prepared should challenges arise that we didn't expect. I'm confident that AASP will once again demonstrate resilience in the New Year. But there are some things that we can do to assure future success.

A scientific society is all about its members. If its members are happy, the organization is happy and successful. Professional societies are "*knowledge networks...created to provide a forum for learned individuals to share and discuss knowledge and discoveries*" (McCarthy and Rands 2013). They focus on 1) the intake, exchange, and dissemination of knowledge, 2) camaraderie among their members, and 3) professional recognition (Diggle 2013). Scientific societies are not supported by any governmental entity; they are volunteer organizations supported and sustained by individual members who care very deeply about the science that the society supports and sustains -- in our case

the science of palynology. Just how deeply do you care about the science of palynology?

Membership numbers in many scientific organizations are declining, in part due to the negative impact of digital publishing and digital communication in general. I can now sit at my desk and read all my journals online, then I can tweet, text, or e-mail a few colleagues and go back to my research and report writing. Because of the ease of digital communication, most days I don't ever pick up my desk phone. I don't print out e-mails or other communication and everything important gets saved as a digital copy. Paper files are almost non-existent in my office. What a change from just a few years ago.

With the ease in exchanging information internationally in milli-seconds (when everything is working properly), for what could I possibly need AASP? AASP's meetings, journal, and other publications (including this Newsletter) function as dependable and trusted sources of information about palynology. Without AASP, I would be dependent on Wikipedia and other sources of information that I consider untrustworthy and undependable. I want my sources of palynological information to be written by professionals, peer-reviewed by even more professionals, archived for the future use of professionals, and I want to know those professionals personally. Only then can I trust what I read as reliable science rather than scientific babble. AASP's meetings, journal, and other publications function as dependable, reliable, trustworthy sources of information about palynology internationally. AASP is an essential "knowledge network" about palynology and one that deserves my support. If you deeply care about palynology, I hope that you feel the same way I do. And, if you do, why don't you encourage your colleagues who also call themselves palynologists to also support AASP. I am astonished and amazed to see so many research articles on palynology written by professional palynologists who are not AASP members. Why? I don't see articles on vertebrate paleontology written by authors who are not members of the Society of Vertebrate Paleontology. I don't see professional publications on ornithology written by authors who aren't members of one of the ornithological societies. Why then would professional palynologists not support their own scientific society. Is the answer because AASP is not yet seen as **THE** Palynological Society -- representing all aspects of the science of palynology? If it's not AASP-The Palynological Society that represents all aspects of the science of palynology, then what scientific society does? In my mind only AASP qualifies to call itself **THE** Palynological Society. There is no other.

In my brief acceptance speech in San Francisco, when I took the gavel from then President Ian Harding, I stated as one of my goals for the organization an increase in membership to 500 members. I asked for your help in reaching that goal and promised that I would not take any credit when we reach that goal. You can have all the credit. Since San Francisco, several of you have asked what I am doing to reach my goal. I have reminded them that increasing our membership to 500 members is NOT my goal alone; it is OUR goal and I asked them what they are doing to reach our goal. Well, what are you doing? Have you told

a colleague how invaluable AASP has been to your career development and encouraged them to join **THE** Palynological Society? It is so incredibly simple, quick, and easy to go to palynology.org and become a member. If we all -- each one of us -- encourage just one palynologist to become a member...well, you can do the math. Reaching our goal of 500 members is really not much of a reach at all.

Now lastly, I need to share with you some sad and disturbing news from the Hotel ~~California~~ Whitcomb in San Francisco (site of the 46th annual meeting last October). We promised that the SF2013 meeting would be memorable. Well, it turns out that the meeting was *too* memorable to a young graduate student from a distant foreign country. It seems that he was too believing and, might I say, too gullible. When I said in the meeting opening ceremony "*You can check out any time you like, but you can never leave*", he took me literally and didn't leave at the end of the meeting. Last week he was still waiting for someone to tell him that he could leave. That's when the Hotel contacted me with the problem. Since it was really a problem I created, I graciously paid for his hotel bill and he was finally on his way back home, overloaded with all those memories. Sad and disturbing? Truth or fabrication? You decide.

References:

Diggle, P., 2013, Learned societies -- past, present and future: Plant Science Bulletin, vol. 59, no. 4, p. 150-157.

McCarthy, D., and Rands, M., 2013, Learned societies -- a bridge between research, policy making and funding: Studies in Higher Education, vol. 38, p. 470-483.

BOOK REVIEWER NEEDED!!!!

After 28 years as Book Review Editor, Reed Wicander is stepping down from this position and a new Book Review Editor needs to be found. The job entails requesting from the publishers review copies of books that the membership might be interested in, finding appropriate reviewers and sending them the review books, and finally sending the reviews in to the Newsletter Editor for inclusion in the Newsletter. Review copies of books are frequently sent to the Book Review Editor by the publisher, but if an AASP member is interested in reviewing a book, he/she needs only contact the Book Review Editor, who will then send off an official request to the publisher. After the book review is published, the Book Review Editor then sends a 'thank you' and copy of the review to the publisher. Reed will be glad to send whoever takes over this position his standard request form and 'thank you' letter. Reviewers get to keep the book that they review.

Palynology Managing Editor's Report

By now all members should have received their paper copy of *Palynology*, Volume 37 Part 2. If you have not, please contact me. This part is, of course, also published online:

http://www.tandfonline.com/toc/tpal20/current

I am currently designing the front cover for this year's Volume 38, we hope to have a chitinozoan on the front cover, which may be black this time. The seven articles listed below will all be included in this part. There will be another five papers, but these have not yet finished the proofreading stage. This will be completed very soon, and the part finalised.

I do need more manuscripts for Volume 38, Part 2. Manuscript submission tends to go in cycles, and we are in somewhat of a downturn right now. I would remind potential authors that the electronic system is very easy to use, and it enables the very rapid processing of papers. If your manuscript is in good scientific shape and is written, presented and formatted well, it can be published online very quickly (2-3 months if all goes well!). If you have anything ready (or nearing readiness), please consider sending it to *Palynology*.

I have been negotiating the new contract with our publishers, Taylor and Francis, and hope that this will be signed soon. I will present details of this in the next Newsletter. If anyone would like to volunteer to serve on the Editorial Board, please contact me.

James B. Riding, Managing Editor – AASP – The Palynological Society
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Tel: +44 (0)115 9363447, E-mail: jbri@bgs.ac.uk

Papers to be published in *Palynology* Volume 38, Part 1 (June 2014)

1. Ramírez-Arriaga, E., Prámparo, M.B., Nieto-Samaniego, A.F., Martínez-Hernández, E., Valiente-Banuet, A., Macías-Romo, C. and Dávalos-Álvarez, O.G. Palynological evidence for Middle Miocene vegetation in the Tehuacán Formation of Puebla, Mexico.
2. Sancay, R.H. The occurrence of *Mediaverrunites* in the Upper Miocene of the Black Sea, Turkey.
3. Verhoeven, K., Louwye, S., Paez-Reyes, M., Mertens, K.N. and Vercauteren, D. New acritarchs from the late Cenozoic of the southern North Sea Basin and the North Atlantic realm.
5. Absy, M.L., Cleef, A.M., D'Apolito, C. and da Silva, M.F.F. The palynological differentiation of savanna types in Carajás, Brazil, southeastern Amazonia.
6. Alves, R.F. and Santos, F.A.R. Plant sources for bee pollen load production in Sergipe, northeast Brazil.
7. Price, A.M. and Pospelova, V. *Spiniferites multisphaerus*, a new dinoflagellate cyst from the Late Pleistocene of the Guaymas Basin, Gulf of California, Mexico.

AN OVERVIEW OF AASP-TPS AWARDS

By Martin Farley, University of North Carolina at Pembroke

AASP has a number of awards that recognize accomplishments of palynologists. Here I deal only with awards not directly associated with society officers or students (omitting officer service and Board of Directors Award) or awards at the Annual Meeting.

The deadline is March 1 of each year for submission of nominations to the Awards Committee. The basic nomination procedure is similar for most awards (main letter of nomination accompanied by letters of support, these to include documentation of accomplishment). Details on the procedures for each award can be found at http://www.palynology.org/content/awardproced.html, while a complete list of the people who have received these awards in the past can be found on the second page of this newsletter.

Distinguished Service Award

This award recognizes individuals who have generously supported the society with their work and resources over a number of years and whose efforts have advanced the society. Typically, recipients have held society office, participated in committees, or dealt with publications or meetings. There have been 16 recipients of this award, most recently Thomas Demchuk in 2009.

Honorary Life Membership

This is actually the oldest AASP award with the first awards dating to 1975. This award is given either to people making fundamental contributions to the science of palynology or people who have given the AASP devoted service or both. Honorary Life Membership has been awarded to 15 individuals, most recently to John Williams and Paul Nygreen in 2013.

Medal for Excellence in Education

This medal recognizes leaders in palynological instruction. Nominees are expected to have considerable experience and accomplishment in all aspects of academic education involving palynology, including training of new scientists for the field. The medal has been awarded four times, most recently to Vaughn Bryant in 2013.

Medal for Scientific Excellence

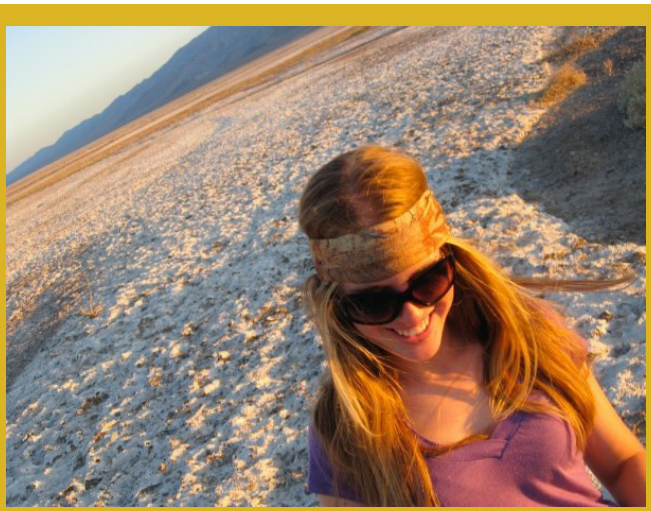
The society's highest award for achievment in the science of palynology is the Medal for Scientific Excellence. The official description lists "fundamental contributions to the development of the science of palynology" as the main criterion. Recipients should have a substantial research history in the field. The medal has been awarded 11 times in the history of the society, most recently to Estella Leopold in 2013.

Deadline: March 1

CONGRATULATIONS TO THESE STUDENTS!
AASP-TPS STUDENT TRAVEL AWARDS

Thanks are extended to Martin Farley and the Awards Committee for their trememdous work.

Student: Carlos d'Apolito, University of Birmingham, UK
AASP travel support is helping him attend the 9th European Palaeobotany and Palynology Conference (EPPC), taking place in Padova, Italy, on August 26-31, 2014. This will be an exciting time to meet old and new colleagues working on all aspects of palynology and palaeobotany. Hopefully Carlos will meet people interested in the palaeoecology of the Neotropics, like himself. He is presently doing his PhD research with Guy Harrington, studying the Neogene palynology of the western Amazon region. Part of this research is what he will be presenting at the 9th EPPC in Italy.



Student: Shannon Ferguson, LSU
Travel: This travel award will allow Shannon to attend a meeting on the taxonomy of *Spiniferites / Achomosphaera* at GEOTOP in Montreal, from 14-17 April 2014. Shannon conducted a MS on the Black Sea, where she encountered many specimens of *Spiniferites cruciformis*. This workshop will serve as the starting point for her to write a paper on this very unique species. Shannon is now pursuing a PhD degree at Louisiana State University.

Student: Valentina Ramirez Valencia, STRI
The award will allow Valentina to present at the 9th European Paleobotany and Palynology Conference, in Padova, Italy.
She will present a project entitled “Spore morphology in relation to phylogeny in the snake fern *Serpocaulon* (Polypodiaceae)” prepared in collaboration with David Sanín. This research will be presented, in the symposium S8: Pollen Morphology and Development, at the conference to share and enrich spore studies in neotropical ferns with palynologysts and paleobotanists of the entire Word.

MARCH 31ST!

2014 AASP Student Research Grants

The deadline for applications for AASP Student Research Grants (formerly the "Student Scholarships") is March 31, 2014.

This year there will be three grants of US$3000 each, two regular Student Research Grants and the McNeilly Student Research Grant.

AASP is pleased to announce that through the generosity of a donation by Juanita McNeilly to honor the memory of her late husband, Roy McNeilly, there will be a McNeilly Research Grant to support student research in Cenozoic tropical palynology. For the purposes of this Grant, Cenozoic tropical palynology covers student projects that address any scientific question using terrestrial palynomorphs or terrestrial with marine palynomorphs.

In addition, AASP offers two Student Research Grants to support research in any area of palynology.

Ordinarily, the scholarships will be offered to beginning graduate students, but advanced undergraduates may also apply. Student Research Grants are to be used for costs directly connected to carrying out research, such as fieldwork and laboratory expenses. The qualification of the student, the originality and imagination evident in the proposed project, and the likelihood of significant contribution to the science of palynology are factors that will be weighed in the selection of award winners. Previous winners of this award are eligible only if they are pursuing a different degree than the one they were pursuing when they received the previous award.

AASP Student Research Grants are available to all students of palynology in all countries and these students need not be members of AASP.

Application forms can be downloaded from our website at http://www.palynology.org/student-support

Inquiries and completed application materials should be sent electronically to the Chair of the AASP Awards Committee:

Martin Farley
Dept. of Geology & Geography
University of North Carolina at Pembroke
mbfarley@sigmaxi.net

Advice on preparing an effective application for an AASP Research Grant

The single most valuable piece of advice is “know and write to your audience.”

You have only a very limited space to describe your project, so use the words wisely. Writing briefly is more difficult than writing at length, but is worth the effort. Literature review should be at a minimum. Keep in mind that the Awards Committee does not know all the context for your project, and may not even have a closely related specialty in palynology. Thus it is important to write for this broader audience. It can be a good idea to show your text to someone who is not a palynologist or involved in the project to see if they understand your description well.

It is fine to have a project that integrates palynology with other data, but be sure to make clear what palynological work you will be performing. If there is prior palynological work, explain how your approach is new or different.

Martin Farley
Dept. of Geology & Geography
University of North Carolina at Pembroke

Advice for Student Presentations for Wilson Award for Mendoza!

Martin Farley with assistance from Reed Wicander

Here is some advice on making effective oral presentations, in other words, how to communicate effectively.

Give a talk on only a few main points. It is unlikely that you can discuss effectively the results of an entire thesis in a single talk. Creating an effective talk is often a process of throwing out material that cannot be covered. Figure out what the important points are (3 to 4 at most) that you want the audience to take away from your presentation.

An effective way to begin a talk is to give the conclusions first (or at least very early). This means you are not giving a mystery presentation during which the audience has to guess what point you are trying to make. You then repeat the conclusions at the end. This idea has a history dating back at least to an essay by Eugene Shinn in the 1986 edition of AAPG's advice on making presentations "Figuratively Speaking," although knowledge of it is not widespread. (The 2000 edition of this book, if available, has many helpful suggestions on design of illustrations for talks.)

Generic advice to speakers often suggests making eye contact with the audience. In a completely dark room, this is impossible. In some venues, you can start your talk with the lights up, make some eye contact, and then have the lights turned off. However, you can still partially face the audience as you speak, and look away from the screen occasionally. You should always avoid talking directly to the screen, rather than your audience, particularly if you are using a laser pointer to highlight items on the screen. Make some contact with the audience during your talk, even if you can't see them.

Make illustrations on slides as large as possible, particularly if there are some details within the image. If this means dispensing with space devoted to organizational logos, then you should do so. Powerpoint allows you to move titles to the side, change their color so they're visible over unimportant parts of the illustration, or otherwise alter them to give the illustration importance. Landscape orientation illustrations work best. Figures with labeling suitable for paper publication are almost always too small to read on a slide.

Avoid busy slide backgrounds. This includes most of the canned versions supplied with presentation programs like Powerpoint. These distract the audience. You can make a very simple master slide with an uniform dark blue background and then put your text and illustrations on top of that.

Don't fill slides with text that you read aloud. The audience can read faster than you can speak, will reach the end of the slide before you do, and quickly lose interest in your talk. Outline the points you want to make on the slide and expand on them verbally.

Avoid fancy slide transitions. Although they may seem fun, they distract the audience from concentrating on your talk.

Use scale bars for photomicrographs, so the scale estimation remains the same no matter the size of the projected image.

Never apologize for the quality of an illustration. It draws attention to the issue and many people would never notice. It also makes it look like you waited until the last minute to prepare your talk, and shows lack of respect to the audience. I once had a poster up all day at AAPG with an obvious boundary fault in it and I was ready to explain at some length why it was there. However, even though hundreds of people looked at the poster, not a single one mentioned it.

If you have time for acknowledgments, you shouldn't thank anyone who is a co-author on the paper (e.g., your advisor). You present on behalf of all the authors on the abstract and as you would not thank yourself for your own help, you do not acknowledge the help of co-authors either.

Formally, in an oral session, the session chair is in charge. The chair decides if there is time for questions at the end of a talk. Therefore, you should not end your talk by asking "Any questions?" because that presumes you control the session. There may be no time for questions through no fault of yours, for example, if the session is running behind schedule. A good phrase to end a talk with is "Thank you."

Practice your talk more than once. Leave some time to allow for pauses. For example, you may have to stop talking to twist around to aim the laser pointer at a screen located in the most inconvenient possible place from the speaker's point of view. You will not be able to know this until you see the venue.

NEW!!!!!!!
AASP-TPS UNDERGRADUATE STUDENT AWARDS

AASP Undergraduate Student Awards

In order to support the teaching of palynology at the undergraduate level, and to encourage and reward student engagement and achievement in this field, the AASP-The Palynological Society announces the AASP Undergraduate Student Award.

The awards are made annually to students nominated by faculty members teaching courses with significant palynological content. One student recipient, with meritorious achievement in some aspect of the course, can be nominated per year per institution.

A faculty member, who is a member in good standing of AASP, and who teaches an appropriate course, may nominate the course using the Registration Form below. Upon approval by the Awards Committee, faculty teaching approved courses may nominate a student to receive the award at any time of the year on the basis of their qualifying criteria. The faculty member will then report the name and address of the recipient to the Awards Committee Chair. The Chair will notify the Secretary, who will provide the membership benefits, and will collate a list of recipients each year for presentation at the Society's Annual Meeting, in the Newsletter, and on the website.

Each award consists of one year's free membership in the Society to include all issues of the Society's publications for that year, the journal Palynology and the quarterly newsletter, discounts on other AASP publications, discounted registration fees at Society meetings, and eligibility for Society awards.

Information for faculty members: To register a course at your institution, please fill in the form below and submit it electronically for approval by the Awards Committee. You only need to do this once unless the course has changed or you wish to nominate a different course for the award.

AASP Undergraduate Student Award – Course Registration Form

Nominating faculty member:

University/Higher Education Institution:

Course Name:

Course Description and level:

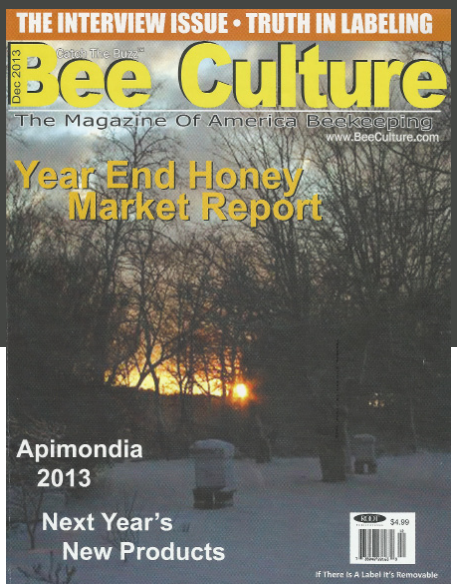
Average number of students registered in the course annually:

Number of hours of palynological instruction:
Lectures -
Laboratory classes -

Criteria used to determine the winning student:

Date:

Please return via email to Awards Committee Chair: Martin Farley (mbfarley@sigmaxi.net)



POLLEN IN HONEY

by Vaughn M. Bryant, PhD
Professor and Director
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I have been examining honey samples from all over the world for nearly 40 years and two things are apparent; most beekeepers don't know what honey their hives produce and most labels on jars of honey sold in the U.S. are wrong or can't be proven correct. There are many reasons why beekeepers often get it wrong and why most jars of honey in the United States don't contain what is claimed on the label. How do we know this? As a melissopalynologist my task is to find the pollen in honey and use it to determine the true nectar sources in the honey and to determine the true geographical location where the honey originated. Neither of these aspects is easy to unravel without a better understanding of the complexity of how pollen gets into honey in the first place.

Trying to achieve both goals (true nectar sources and geographical location where honey was produced) is possible, but it will require the work of a number of melissopalynologists and will require a better understanding of a number of major variables that affect the accurate determination of where a honey is produced and how to identify the correct nectar sources used to produce it. Let me review some of the potential problems that I have encountered in the past. First, I have learned that field identification reported by beekeepers as to the "nectar sources" of their honey are often incorrect. During the past four decades I have examined more than 2,500 honey samples mostly from hives in the United States but also honey produced in a number of foreign countries as well. I have discovered that more than 60% of those "field identifications" of major nectar sources in a honey sample are wrong. Just because honeybees are swarming around some blooming plants, or because some plants near a hive are in bloom does not ensure that those are the major sources for the honey being produced. Second, experimental data reveal that honeybees are efficient at removing a vast amount of pollen during their return flight to the hive from the nectar sources they have collected in their honey stomach. In addition, those same tests document that all honeybees are not "created equal" and that some bees are much more efficient than others in removing pollen from the nectar they have collected. Studies also note that the size and the shape of pollen grains will influence how efficiently honeybees are able to remove certain pollen types from the nectar they collect. For some of the larger pollen types, such as *Chamerion angustifolium* (fireweed), *Oenothera* (evening primrose), *Oxydendrum arboreum* (sourwood), *Vaccinium corymbosum* (blueberry), Lamiaceae (mints), and *Liriodendron* (tulip tree), much of the pollen can be removed fairly quickly before the bee reaches the hive. Other smaller pollen types such as *Mimosa*, *Brassica napus* (canola, rapeseed), *Melilotus* (sweet clover), *Echium vulgare* (blueweed), and *Myosotis* (forget-me-nots), will rarely be removed by the returning bees. Third, a growing number of beekeepers and honey producers are partially or completely filtering their honey and/or are blending their honey with honey from different sources before selling it. Blending and partially removing some of the pollen prevents the accurate assignment of both origin and primary nectar sources in a honey sample. Fourth, my colleagues and I have examined a number of the standard process-

ing techniques currently used in many countries to extract and analyze pollen from honey and we have found flaws in many of those methods. That is why we developed a new extraction method (Jones and Bryant, The use of ETOH for the dilution of honey, 2004, GRANA 43:174-182) that will ensure that no pollen is lost from honey samples. Finally, even when honey samples are correctly processed and their pollen types and percentages are carefully noted, the resulting pollen data do not reflect a one-to-one correlation between the pollen and the primary nectar sources used to produce the honey.

Pollen can be incorporated into honey in a number of ways. When a honeybee lands on a flower in search of nectar, some of the flower's pollen is dislodged and falls into the nectar that is sucked up by the bee and stored in her stomach. At the same time, pollen grains that have become attached to the "hairs", legs, antenna, and even the eyes of bees while visiting a flower can fall into the nectar of a different flower. Later, some of those pollen grains can get sucked into a visiting bee's stomach and both pollen types will be regurgitated with the collected nectar into open comb cells of the hive. While still in the hive a honeybee may groom herself in an effort to remove the entangled pollen on her body. During that process pollen can fall directly into open comb cells of nectar or onto areas of the hive where other bees may track it into the hive area where unripe honey is still exposed. Pollen collected by other bees specifically for storage in the hive or airborne pollen accidently blown into a hive are other potential sources of pollen that can become incorporated into exposed comb cells of nectar being turned into honey.

Pollen is an essential tool in the analyses of honey. The types of pollen indicate the floral sources utilized by bees to produce honey. As a result, pollen frequency is used to identify and label a honey sample as to the major and minor nectar sources. That information has important commercial value because consumers often prefer honey made from specific nectar sources and those consumers are willing to pay a premium price for types such as *Leptospermum scoparium* (manuka), *Robinia pseudoacacia* (white acacia), ***Oxydendrum arboreum*** (sourwood), *Salvia* (sage), *Nyssa ogeche* (tupelo), *Fagopyrum* (buckwheat), or *Citrus* (orange, lemon, etc.) honey. Only by identifying and quantifying the pollen in honey will the full range of nectar sources be identified and the honey's actual foraging resources be correctly labeled. Another reason why pollen analyses of honey are important is to determine the honey's geographical origin. The combination of pollen types found in a honey sample will often produce a pollen spectrum that is unique for a specific geographical region. Because of trade agreements, import tariffs, and legal trade restrictions, most honey-producing nations in the world require accurate labeling of honey before it can be sold. However, the United States Department of Agriculture (USDA) and the Food and Drug Administration (FDA) does not require truth in labeling as a requirement for honey sales in the United States.

During the mid-1900s Todd and Vansell, (F. Todd & G. Vansell, 1943, JOURNAL OF ECONOMIC ENTOMOLOGY 35[5]: 728-731) examined pollen grains in nectar and honey. While conducting those studies of honeybees in California, they made a shocking discovery. They found that caged honeybees fed a diluted syrup-water solution containing 750,000 pollen grains per cc produced honey that had only 25,000 pollen grains per cc. In other words, most of the pollen in the syrup-water had been removed by the bees before the solution was emptied from their honey stomach into new comb cells and made into honey. Todd and Vansell realized that the newly produced honey had a pollen concentration value that was only 1/30th of the original amount of pollen in the syrup-water fluid. The only logical conclusion was that there must be a significant reduction in pollen concentration as a result of the internal filtration system in a bee's honey stomach, which was apparently far more effective than anyone previously realized. They went on to discover that the amount of pollen in the nectar of different plant species varied greatly. That information combined with their study of how bees remove pollen from the nectar provided pioneering efforts in the

development of pollen coefficient tables. Their initial efforts then led others to use those ideas and experimental data to compile lists of plants that are over or under-represented by their relative pollen frequencies in honey samples (Bryant and Jones, 2001, The R-values of honey: pollen coefficients, *Palynology* 25:11-28).

In the half-century since the initial study by Todd and Vansell we have learned a lot about the ratios of pollen in honey and their relationship to the actual amount of nectar those plants contribute. For example we know that only a few percent of sourwood or fireweed pollen in honey means you have a "unifloral honey" from those sources because both sourwood and fireweed pollen are highly under-represented in honey. On the other hand, if you have 75% pollen from rapeseed (canola) sources in a honey sample that does not mean it is a "unifloral honey" because the actual nectar contribution from rapeseed plants, as compared to the large percentage of pollen, is actually minimal. Unfortunately countries and individuals still insist that in most cases to be classified as a unifloral honey one must have "at least 45% pollen" from one floral source. For some plant and nectar sources that requirement is valid but for others, such as fireweed and sourwood, one might never find those levels even in nearly pure honey produced primarily from the nectar of those plants. This is why using pollen coefficient (PC) data are so important and why pollen testing and the application of those data are essential tools needed to provide an accurate identification of the honey sitting on the self in some supermarket! However, not everyone accepts the use of PC values because of questions related to the techniques that were used to generate those tables and values. Some of the PC research was conducted more than 50 years ago using techniques and standards that were adequate at the time, but new studies using improved techniques should be done today. The current problem, especially in the United States, is that few academic centers teach techniques related to beekeeping, none of those academic centers teach melissopalynology as part of their programs, and the United States Department of Agriculture, although interested in honeybee research, currently spends most of their funds and efforts on searching for causes of bee colony decline.

Developing new and valid PC standards would not be difficult or expensive, but the research would require time and effort on the part of those working on the problem. So far, there appears to be little interest in trying to develop new sets of PC standards that could be adopted universally as guides to identifying unifloral honey types from any region of the world. Unfortunately, at present no one in North America is tasked with the routine examination of pollen contents in honey samples and thus what is on the label of many honey products sold in urban stores or at farmer's markets in both Canada and the United States often has no relationship to what is actually in the jar. Until beekeepers and consumers, especially in Canada and the United States, insist on changes, we will continue to pay high prices for "so-called" premium honey types, which in reality might be nothing more than inexpensive clover, canola, or even blends of honey from different regions. The first step in correcting this would be to demand truth in labeling for honey sold both in Canada and in the United States. My repeated testing of honey sold commercially in almost every U.S. state, and some provinces in Canada, reveals that this is desperately needed in order to correct the misinformation now found on the jars of most honey. Requirements for truth in labeling of honey would then create a need for developing new sets of accurate PC (pollen coefficient values). After that, the potential for research funding to expand the needed PC research of honey types, and the potential for future palynologists to work in the honey industry and in academic centers would exist. Likewise, students and researchers would soon be willing to pursue the study of melissopalynology with the result being a bonus for consumers throughout Canada and the U.S. who could then believe with certainty that what was written on the labels of honey products in indeed true!

CONSIDER HELPING OUR MISSION

AASP Foundation Century Club

WHAT ?

The Century Club of the American Association of Stratigraphic Palynologists Foundation is an organization founded by the Trustees of the Foundation in order to provide persons with the opportunity to support the publishing activities of the AASP Foundation.

WHY ?

1. To develop an established level of giving that will continue to provide a solid financial base for the Foundation.
2. To provide unrestricted funds to support the various publishing activities of the Foundation.
3. To provide a meaningful organization and method of recognition of dedicated "friends" of the AASP Foundation.

HOW ?

Your tax-deductible contribution of $100 or more to the AASP Foundation entitles you to belong to the Century Club. The 2013 "membership" drive is on now. Your contribution may be made by personal check or by a pledge which is ***payable on or before*** **DECEMBER 2014.**

JOIN !

To join the Century Club just complete the attached Contribution/Pledge Form and mail to the address listed below.

The AASP Foundation is a 501 (c)(3) not-for-profit, public organization. That means that contributions to the AASP Foundation are fully tax-deductible from your U.S. Federal income tax return. Also, many employers have a matching gift program whereby they match your personal gift to not-for-profit organizations. It is well worth the effort to explore this possibility concerning your gift to the AASP Foundation.

2014 AASP Foundation Century Club Contribution Form

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Mail to:
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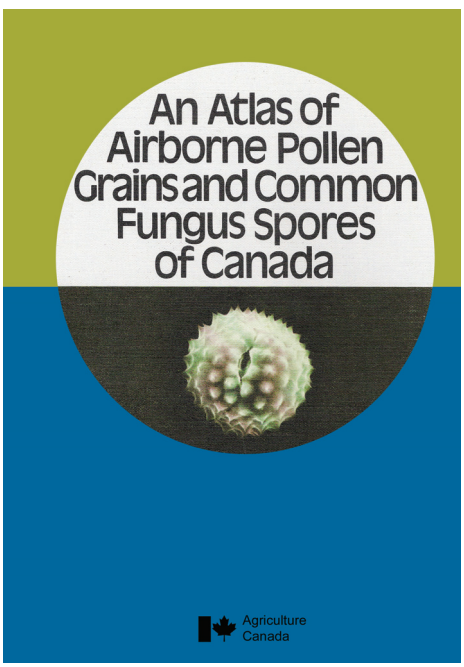
AASP Foundation
725 Sam Hill St.
Irving, Texas 75062-7548

Contribution enclosed: $ _____ I wish to pledge: $_____



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321 pages; 160 figures/photographs; numerous tables/charts.

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AASP Foundation 2013
Dallas, Texas, U.S.A.
ISBN: 978-0-931871-09-2

The 1995 AASP Contributions Series No. 30, *Pollen of the Southeastern United States: with emphasis on Melissopalynology and Entomopalynology*, is again available in a limited printing. 184 pages, 616 individual SEM photos; spiral bound. The publication may be ordered through the AASP secure website listed above. Publication cost is $30.00. Shipping costs: to a U.S. address by Media Mail is $4.00; shipping costs to a **non-U.S.** address is $13.00.

CONFERENCES

Contributors

IPA International Palaeontological Association

CONICET

Centro de Congresos y Exposiciones

x

AASP-The Palynological Society 47th Annual Meeting
Participation in the
4th International Palaeontological Congress Mendoza, Argentina

GO TO:
http://www.ipc4mendoza2014.org.ar/aasp/
FOR ALL DETAILS!

Planning for the AASP-TPS Annual Meeting
Mendoza, Argentina Sept. 28 – Oct. 4, 2013

Board Meetings

Outgoing Board Meeting: Monday, September 29th 7:30 – 9:00PM
Sheraton Hotel (8-10 people)

Business Meeting (and Social Evening): Tuesday, September 30th 7:30 – 10:00PM
Hotel Huentala, Kitek Cava Wine Cellar, *Wine-tasting and Finger-food*

Incoming Board Meeting: Friday, October 3rd 7:00 – 8:00PM
Sheraton Hotel (8-10 people)

Other Social (AASP-TPS-related) Events

IPC4 Icebreaker: Sunday, September 28th 7:30PM
Sheraton Hotel Foyer and Bar

Asado/Evening Dinner: Friday, October 3rd (after Incoming Board Meeting) 8:30PM
Bodegas Familia Zuccardi (proposed: negotiating)

Wine Tour to Valle de Uco (South): Saturday, October 4th 8:30AM – 5:30PM
Bodegas Salentein, Andaluna Cellars (lunch), Bodegas Domaine Bousquet (proposed)

Technical Sessions and Abstract Submissions

AASP-TPS members attending the Congress and planning on presenting a paper are strongly encouraged to submit their Abstract to one of the proposed Symposia. Each participant sending in an Abstract through the website will have the choice among symposia, open sessions, or special sessions such as the AASP meeting. All the abstracts for the AASP meeting will be reviewed by Drs. Mercedes Pramparo and Thomas Demchuk for acceptance into the general AASP session.

General palynology Abstracts will be placed in a full-day General Palynology Theme Session sponsored by AASP-TPS. Keynote speakers have been identified (and will be invited) to give presentations of 45 minutes each (one to open each of the morning and afternoon sessions, and two to immediately follow mid-session coffee breaks). Other general oral presentations will be chosen from the Abstract submissions to fill the remaining available 20 minute time slots. Other Abstracts will be chosen for poster session only.

The on-line Abstract submission form will be available through the IPC4 website by end-January. **All invited and voluntary submissions will be conducted through the IPC4 website.**

IPC4 Icebreaker: Sunday, October 28th

The Icebreaker will be held in the main foyer/bar area of the Sheraton Hotel immediately following the Opening Ceremonies on the evening of Sunday, September 28th. This event is part of the normal registration fee and is open to all Congress attendees.

The Entrance and Main Lobby of the Mendoza Sheraton Hotel, host for the IPC4 Congress

AASP-TPS Social Evening (and Business Meeting): Tuesday, September 30th

Instead of the formal AASP-TPS Business Luncheon, a less formal Social Evening will bring together AASP-TPS members for an evening of Mendoza wine-tasting and local Argentinian flavors. This event will be held in the Kitek Cava Wine Cellar in Hotel Huentala on the evening of Tuesday, September 30th. The wine-tasting will commence at 7:30PM, with the formal AASP-TPS Business Meeting to take place shortly thereafter. Formal presentations will be given by the AASP-TPS Secretary-Treasurer, Managing Editor, and the AASP Foundation. Awards will be presented to deserving AASP-TPS members, followed by the traditional passing of the gavel from the current President to the President-Elect. Following a short speech by the incoming President, the evening will continue with additional wine-tasting and local Mendocino flavors (e.g. empenadas, tartalettas, canapes). This event will be ticketed separately and will require an additional surcharge for AASP-TPS members. *Price is expected to be **US$45/person** for this event.*

The Kitek Cava Wine Cellar, Hotel Huentala: Proposed site for the AASP-TPS Social Evening and Business Meeting

AASP-TPS Argentinian Asado/Evening Dinner: Friday, October 3rd

To truly appreciate and enjoy the Argentinian culture, it is proposed to organize an Argentinian Asado (Argentinian BBQ) dinner on the Friday evening following the Incoming Board Meeting. This function would be held at one of Mendoza's most famous and historic Bodegas, Familia Zuccardi. This Bodega specializes in serving an authentic Argentinian Asado beginning with appetizers (empanadas), through to various cuts of beef perfectly prepared on the hardwood parrilla (bbq grill). Of course there would be a range of excellent Zuccardi wines to enjoy with the great food. A mini-van (or two) would be provided to transport interested participants from the Congress center to the Familia Zuccardi vineyard which is located in Maipu, approximately 40km outside of Mendoza. This event will be ticketed separately and will require an additional surcharge for AASP-TPS members. *In recent discussions with Bodegas Familia Zuccardi, cost for this Asado will be approximately* ***US$75/person****.*

Bodegas Familia Zuccardi, Maipu, Mendoza Province

Bodegas Familia Zuccardi, Dining Room

Valle de Uco Wine Tour: Saturday, October 4th

A special wine tour will be scheduled for AASP-TPS participants, to the southern wine growing region of Valle de Uco. This area is famous for high-quality wines owing to the high altitude and unique growing conditions. The current itinerary is to visit three high-quality vineyards: these may include but not be limited to Andeluna Cellars, Bodegas Salentein (lunch), and Bodegas Domaine Bousquet. The fieldtrip will leave Mendoza at approximately 8:30AM Saturday morning, and will travel to Valle de Uco across the Andes pre-Cordillera to gain appreciation of the local geology. The return trip will be through the historic city of Tupungato. We are expected to arrive back in Mendoza no later than 5:30PM. This event will be ticketed separately and will require an additional surcharge for AASP-TPS members. *It is expected that the price for this event will be approximately* ***US$250/person****.*

Andeluna Cellars, Valle de Uco, Mendoza Province

Bodegas Salentein, Valle de Uco, Mendoza Province

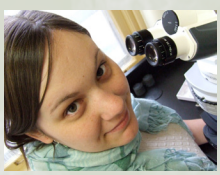
POLLEN ANALYSIS SHORT COURSE

University of Maine – Climate Change Institute

June 1st – 7th, 2014 in Orono, ME

The Climate Change Institute at the University of Maine and PalEON are offering a short course on the science and theory of pollen analysis, including:

- Modern pollen sample collection & preparation
- Sediment coring for paleo-vegetation reconstruction
- Chemical processing, slide preparation & microscopy
- Pollen morphology & identification
- Data analysis with R, Tilia, & the Neotoma database
- Evening mini-courses on R programming, social media, open science, and related topics.



Jacquelyn Gill
Assistant Professor
University of Maine

Andrea Nurse
Paleoecology Research Associate
University of Maine

Simon Goring
Postdoctoral Researcher
University of Wisconsin

The **$750** course fee includes materials but *does not include food or lodging*. Rooms at the University Inn are available at a special rate: $79 for a single room, or $89 for a double.

Space is limited! If you are interested, please send a letter of intent via email to jacquelyn.gill@maine.edu by April 15th. Include your CV and a paragraph stating of how this course will help you to achieve your research and career goals. To request financial support please include a statement of need.

CLIMATE CHANGE INSTITUTE

1865 THE UNIVERSITY OF MAINE

PalEON

DINO11: Bordeaux it is!!!

UPCOMING DINO11th in Bordeaux, France

The upcoming Dino11th meeting will be held in Bordeaux in 2017. After Tübingen, Egham, Zeist, Trondheim, and Liverpool, this town will thus be the 6th European metropolis (since 1978) to welcome dinoflagellate specialists from both the modern and fossil realms. Apart from its famous vineyards, Bordeaux is a strategic paleo(environmental) center with rapid access to internationally referenced geological sites (Aquitanian and Burdigalian stratotypes, Campanian/Maastrichtian GSSP, K/T boundary, Quercy phosphorites, dinosaur tracks), and to aquatic ecosystems of exceptional interest (Bay of Arcachon, Gironde estuary, Bay of Biscay, Aquitain lakes...)

Collegially co-opted by the french "Dinos" community (see involved people below), and with the support of the APLF (Association des palynologues de langue francais), the host will be the EPOC laboratory from Bordeaux University. This lab (http://www.epoc.u-bordeaux.fr/index.php?lang=en&page=accueil) mixes micropaleontological and biological approaches to study modern and past environment evolution throughout times.

Involved people from the EPOC group (local organization): Frédérique **Eynaud**, Laurent **Londeix** (paleoclimatogy team/ biostratigraphy and paleobiodiversity) & Yolanda **Del Amo** (Ecology and Biogeochemistry of Coastal Systems) with the help of Marie-Hèlène **Castera**, Linda **Rossignol** & Jean-Louis **Turon**.

French partners:

- UMR CNRS/MNHN/UPMC 7207 Centre de recherche sur la paléobiodiversité et les paléoenvironnements, Université Pierre et Marie Curie (Edwige Masure)

- CNRS UMR 8217 Géosystèmes, Université Lille 1, UFR des Sciences de la Terre, 59655 Villeneuve D'Ascq cedex (Thomas Servais),

- Laboratoire Domaines Océaniques (LDO), IUEM, Place Nicolas Copernic, Technopôle Brest-Iroise, Université de Bretagne Occidentale, 29280 Plouzané (Aurélie Penaud),

- ECOSYM « Ecology of Marine Coastal Systems » Laboratory - UMR CNRS **Montpellier II University**, CC 093 – Place E. Bataillon – 34095 Montpellier cedex 05 (Mohamed Laabir),

- Observatoire Océanologique de Villefranche sur mer, **Université Pierre et Marie Curie, Laboratoire d'Océanographie de Villefranche, CNRS UMR 7093 -BP 28, 06234 Villefranche-sur-mer –France (Rodolphe Lemée).**

Frédérique Eynaud, Laurent Londeix

ANNOUNCEMENTS

A two-year MSc studentship is available for the NSERC-funded program: "Pliocene - Pleistocene dinoflagellate cysts, geochemistry, and paleoceanography of the North Atlantic region" in the Department of Earth Sciences, Brock University, St. Catharines, Ontario, Canada. Application deadline: April 4, 2014 (but see below).

Description of MSc project: The North Atlantic Current (NAC) and thermohaline circulation are major drivers of global climate change, transferring heat and moisture to high northern latitudes. Moisture is necessary for ice sheets to accumulate, which increases albedo and causes global temperatures to drop. Hence, the Northern Hemisphere, through its capacity to grow extensive continental ice sheets, has been a major amplifier of global climate change at least since the Late Pliocene. The changing dynamics of the NAC and polar front are accordingly critical to our understanding of past and future climates.

The Pliocene - Pleistocene transition, including the intensification of Northern Hemisphere glaciation at 2.74 Ma and the base of the Quaternary at 2.58 Ma, represents a profound shift to our present climate state. The project will focus on one of several available sediment cores in the North Atlantic that captures this transition. A novel combination of proxies (dinoflagellate cysts, other palynomorphs, ice-rafted debris, and foraminiferal Mg/Ca ratios and oxygen and carbon isotopes) will be used to reconstruct sea-surface temperature, salinity, ice melting, NAC strength, and position of the polar front through time.

Applicants should have a strong interest in paleoceanography, paleoclimatology, or paleoecology, and be comfortable using a microscope. Previous exposure to palynology would be an asset but full training will be given in all areas of the project.

The project, under the supervision of Prof. Martin J. Head, will include collaboration with Dr Jeroen Groeneveld (Bremen University, Germany), Dr Stijn De Schepper (Bergen University, Norway), and Dr Jan Hennissen (British Geological Survey). It is scheduled to begin September 2014, but could be delayed to January, 2015.

Recent literature relevant to project:

De Schepper, S., Groeneveld, J., Naafs, B.D.A., Van Renterghem, C., Hennissen, J., Head, M.J., Louwye, S., and Fabian, K., 2013. Northern Hemisphere glaciation during the globally warm early Late Pliocene. PLoS ONE 8(12): e81508. doi:10.1371/journal.pone.0081508.

De Schepper, S., Head, M.J., Groeneveld, J., 2009. North Atlantic Current variability through marine isotope stage M2 (circa 3.3 Ma) during the mid-Pliocene. Paleoceanography, 24: DOI: 10.1029/2008PA001725.

Gibbard, P.L., Head, M.J., Walker, M.J.C. and The Subcommission on Quaternary Stratigraphy, 2010. Formal ratification of the Quaternary System/Period and the Pleistocene Series/Epoch with a base at 2.58 Ma. Journal of Quaternary Science, 25(2): 96-102.

Brock University: Brock is a medium-sized comprehensive university (18,512 students) located in the heart of the Niagara Region, a 20-minute drive from Niagara Falls, 1 hour from Toronto, and 40 minutes from Buffalo (USA). The campus sits atop the Niagara escarpment and is part of a UNESCO biosphere reserve.

How to apply: The on-line application for admission is at:

https://discover.brocku.ca/Buffers/MSCERSC.ezc

The application deadline is April 4, 2014 or until filled. Please check well in advance that you meet English language requirements.

For any questions relating to this project, please contact Prof. Martin J. Head (mjhead@brocku.ca). You are encouraged to contact Prof. Head prior to applying.

==========

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Brock University

GEOW INSTITUTE OF EARTH SCIENCES

UNIVERSITÄT HEIDELBERG
ZUKUNFT SEIT 1386

The *Paleoenvironmental Dynamics Group* within the Institute of Earth Sciences, University of Heidelberg, Germany, invites applications for a

PhD position in Marine Micropaleontology / Paleoclimatology

The project is funded by the German Research Foundation (DFG) and aims to decipher the surface-water characteristics of the higher-latitude Atlantic Ocean during the Oligocene based on core material recently recovered during Integrated Ocean Drilling Program (IODP) Expedition 342 off Newfoundland. Methodologically, the project will be mainly based on quantitative palynology. Dinocysts will yield information on surface-water circulation patterns, salinity and productivity; the concomitant evaluation of sporomorphs will provide information on terrestrial paleoenvironments, thus yielding a direct land/sea correlation of climatic signals. The palynological results will be integrated with other surface-water data generated within the IODP Expedition 342 consortium (TEX_{86}, alkenones, planktic foraminiferal $\delta^{18}O$, and Mg/Ca), ultimately yielding both qualitative and quantitative information on climate dynamics across critical intervals of the Oligocene.

Requirements for applicants are completion of a MSc degree in geosciences or a closely related discipline prior to appointment, and written and spoken fluency in English. The successful candidate should further have a strong background in marine micropaleontology (preferably palynology) and paleoclimatology as well as an interest in organic geochemistry. The majority of the work will be based at the Institute of Earth Sciences in Heidelberg, Germany, but periods may also be spent at research institutions in The Netherlands and the United Kingdom. The initial appointment is for two years, with a possible extension of one year depending on performance and continued external funding. Salary and social security benefits are according to a German civil service position (E 13, 60 %).

The University of Heidelberg is committed to increasing the proportion of female scientific staff, and applications from women are especially welcome. Disabled persons will be given preference if equally qualified.

Applications (including a CV, a 1-2 page cover letter with a statement of research interests, and the contact information of three referees familiar with the applicant's research) should be sent as a single pdf file to Prof. Jörg Pross (E-mail: joerg.pross@geow.uni-heidelberg.de). The closing date for applications is March 16, 2014.

For additional information please contact Prof. Jörg Pross, Institute of Earth Sciences, University of Heidelberg, Im Neuenheimer Feld 234, D-69120 Heidelberg, Germany; E-mail: joerg.pross@geow.uni-heidelberg.de

For Sale:

Olympus BHT-F microscope with four power objectives and internal halogen light source; reference slide collection, western North American species; Olympus OM-1 system camera with focusing screen with photomicro mount adapter. Purchased new 1990, lightly used.
$5000
Will pay North American shipping.
Faith L. Duncan (Phone: 907-821-0022).
email: weya@kpunet.net.