



A.A.S.P. NEWSLETTER

Published Quarterly by the American Association of Stratigraphic Palynologists Inc.

March 2002
Volume 35, Number 1

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A.A.S.P.

American Association of Stratigraphic Palynologists Inc.

The American Association of Stratigraphic Palynologists, Inc. - AASP - 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.

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)

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)

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)

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)

Awards at each Annual Meeting: Best Student Paper Award, and Best Poster Award.

AASP Student Scholarships may be awarded annually to three students in the amount of US\$1500. 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 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 Scholarships are available to all students of palynology in all countries and need not be members of AASP. Application forms appear in the January issue of the AASP Newsletter, are available from the Chairman of the AASP Awards Committee (Fred Rich (frich@gasou.edu)), or can be downloaded from our website at <http://www.palynology.org/content/scholar.html>.

AASP Membership categories and dues (in US\$ per year) are as follows:

Individual (\$45.00), **Student** (\$30.00), **Retired** (\$15.00), and **Institutional** (\$70.00). Dues may be paid up to three years in advance by using credit card (MasterCard, Visa, American Express), check or money order (made payable to AASP Inc.), and must be sent to the Secretary-Treasurer. All members receive the AASP Newsletter (mailed quarterly by hard copy or via email), Membership Directory (mailed annually), and (with the exception of Retired members) the journal *Palynology* that is published annually. Overseas members can receive their Newsletter and *Palynology* by airmail, rather than book rate surface mail; an additional surcharge is required in the amount of US\$12.00 for Europe & South America, and US\$15.00 for Africa, Asia & the Pacific region (includes Australia and New Zealand).



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March 2002
ISSN 0732-6041

Volume 35, Number 1
Marloes Kloosterboer van Hoeve, 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 a week before the deadline. Deadlines for next issues of the newsletter, are June 1, 2002 and September 1, 2002. All information should be sent on computer disks (preferably Word-Perfect) or 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.

PRESIDENT'S PAGE

by David Pocknall
27 February 2002

Belated happy New Year. I sincerely hope that 2002 will be as successful or more successful in your palynological endeavors than 2001. From the boards standpoint we look forward to a mid-year meeting in St Catherines, Ontario (site of the 2003 annual meeting), followed by the annual meeting in September at University College, London. The organizers of the joint annual meeting with NAMS and BMS urge you to consider submitting an abstract for the meeting (see information later in the newsletter). It should be a great opportunity to meet and discuss items of mutual interest with colleagues in other fields of paleontology in the great city of London.

By now you should have received your latest issue of Palynology and again hats off to the editorial board under the leadership of Owen Davis and the publishing arm of AASP - Bob Clarke! As the issue was being printed the printer went out of business which explains why it was a little late and as a result of a glitch in the printing Bob had to show his creativity to get it fixed at a printing shop in Dallas. Another seamless operation! Work has begun to find a new printer in time for the printing of this year's volume.

Over the past weekend I attended the Geological Society of America associated societies meeting and one of the main items on the agenda was that of an earth science journal aggregate. In simple terms the goals would be to:

- * Provide the geoscience community a research tool that affords fully-linked online searching of the primary literature; Increase the value of the scientific society journals to the greater geoscience community;
- * Meet the needs of the research librarian subscribing to online journals; and
- * Meet the needs of the associated and affiliated societies of GSA in facilitating the entrance into digital publishing.

AASP could elect to join the aggregate which would make Palynology available online. This could answer some of our recent considerations around making the journal available digitally, deliver our journal to a much wider audience, and could be in favor with the institutional members who currently are accessing a growing number of journals through other online aggregates such as BioOne and ScienceDirect. You might like to take a look at their front pages to get some idea of what I am talking about. The pace with which aggregates

are developing is rapid and a prototype of the earth science one will be up and running in the next few months. There are lots of unanswered questions - one of importance to us is how the revenue stream will be distributed. We will be offered the opportunity to join so the board will be discussing this at the mid-year meeting and we will keep you posted as things progress. We need to leverage our association with GSA much more; for some things we can hang on their coat tails and in my opinion this is clearly one of them.

Since the last time I reported on CENEX I have signed the agreement with LSU to create an endowed professorship at the \$200,000 level and an endowed chair at the \$600,000 level. We look forward to future progress in the fund raising and the eventual appointment of the chair.

FROM THE DESK OF THE SECRETARY-TREASURER

Thomas D. Demchuk

As you will have already noticed, along with this issue of the Newsletter is the new 2002 Membership Directory, the first such Directory in a couple of years. All AASP members who were paid through the end of 2001, are included in the Directory even if you have not yet paid this years dues. My apologies if someone's information is out-of-date, but I was working with what was in my membership file. If you see something that is incorrect, please contact me via e-mail and I'll make the change, and see that the correction appears in a future issue of the Newsletter. Most importantly, please make sure your e-mail address is correct. As we move more and more into the digital age, you will be receiving more and more information via e-mail and through the website, thus it's imperative that I have your most recent e-mail address on hand. Those of you who receive the newsletter electronically, please don't despair since you will soon receive the Membership Directory in a separate mailing.

Those of you who have not yet paid your 2002 membership dues will only receive one more issue of the Newsletter. Please check your mailing label, which states the year you are paid up through (or contact me for that information). After the next Newsletter you will receive only a dues notice. Those people who were members, but had not paid their dues since 1999 and 2000 did not receive this Newsletter and only received dues notifications. Those members (1999 and 2000) have been removed from the active membership files, but it's hoped that some of them will renew in the near future. I will be looking through the membership numbers and reporting these to the Board at the upcoming mid-year meeting in St. Catherines. I will subsequently report the information to the membership in the next Newsletter. Although our membership is down, we still have strong numbers. Our finances are becoming more stable, and I will also report on those after the mid-year meeting. At that meeting we will be discussing the air-mail surcharge which we currently impose to cover mailing costs. Look for an update on that topic also in the next Newsletter.

Your webmaster, Paul Strother, and I have been working on setting up a secure server for the AASP website (Paul has done much of the work on this). All the documents have been signed with the service provider, and in the near future members will be able to pay their membership and buy AASP Foundation publications with credit card, securely through the AASP website. This should save everyone lots of time and energy in paying their dues in that they will only have to access the website and pass on their credit card information in a safe and secure manner. A few select members of the Board will have access to the secure server in order to download the information you place there. AASP is definitely moving into the 21st Century digital age! Watch my column in the near future for updates on this process.

Speaking of the digital age, I must continue to urge all members to receive the newsletter electronically. Presently, over 100 members receive the newsletter much sooner than those who continue to rely on the United States and their local postal services. Get with the program! Send me an e-mail with your up-to-date electronic address and I will make sure you are on the distribution list. Of course I realize that some cannot access the web, receive attachments, or download from the web; those folk can continue to receive a hard copy of the Newsletter. David (I think) has mentioned in his President's Message, that there are several geological associations who have already completely gone to electronic versions of their newsletters. AASP is politely asking members to receive the Newsletter in this manner, but we currently are giving you the option. As reproduction and mailing costs increase, however, I foresee the day where an electronic Newsletter will be the norm. Of interest, is the decision within IFPS to only produce an electronic copy of Palynos, the IFPS Newsletter. Thus, a simple announcement in the AASP Newsletter will alert members that a recent version of Palynos is available for viewing. Please stay tune to future Newsletters as IFPS makes its final decisions.

Finally, as you read (sing?) my tongue-in-cheek biography elsewhere in this Newsletter, I'm happy to announce that I will stand for Secretary-Treasurer for another year. I only have one more year to catch up to David Pocknall (who was Sec-Treasurer for five years) but I still have four more years to catch up to Gordon Wood who held the position for 8 years...yes, that's right, 8 years of bliss! Feel free to write in another candidate, but I sense that I will continue on in this position for the foreseeable future. And I'm happy to do so! How else could I justify to my superiors at work that I really need to travel to Niagara and London, and have Conoco pay for it! (soon to be ConocoPhillips!). I look forward to serving AASP through 2002, and seeing everyone in London in September.

Respectfully submitted,
Dr. Thomas D. Demchuk
AASP Secretary-Treasurer and Die-Hard Edmonton Oilers Fan

THE CANDIDATES FOR THE AASP BOARD 2003



President-Elect

Sharma Gaponoff: I was first introduced to the world of palynology by Judie Lentin many, many moons ago when I was an undergraduate, and Judie had just finished her PhD at Sheffield. I digressed though and became a Junior and Senior High School science, math and physical education teacher for 8 years. However, I always remembered Judie's enthusiasm for palynology, and one day, entered graduate school in California under the tutorage of Dr. Janet Warter and completed my studies in Palynology. I was recruited by Chevron research where I had the pleasure of working with/learning from Satish Srivastava and the late Warren Drugg and have been working for Chevron (currently ChevronTexaco) for the past 20 years (where does the time go?). I first joined AASP as a graduate student those many moons ago. Throughout my membership I have been on various committees, judged student papers, co-chaired AASP Meeting sessions, served on the Board of Directors and have had the opportunity to be involved in several projects with other AASP'ers. Most recently, I was on the AASP team that developed the web site, Working Group on Tropical Dinocysts at <http://dinowg.free.fr/>. All of you are welcome to visit/participate on this web site. Secondly, I have just e-sent out a call to all the 2001 AASP Meeting field trippers suggesting that we pool our resources and put together a poster session and palynology guide book based on the outcrop samples we collected and present this at the AASP meeting this year in London. (If you were on the field trip and didn't get the message, please e-mail me, as some of your e-addresses have changed.) The other project I'm currently doing with other AASP'ers is to develop a CD that will capture viewer's interest in the wonderful world of palynology and help promote our science and its applications. There are many AASP'ers involved in these projects. None of us works alone. The membership of AASP consists of a fabulous group of dedicated scientists that are talented and creative. Our science is probably one of the more eclectic of subjects, but then again, so are we. As I have a background in both teaching and industry, I have first hand knowledge of the needs of both these sub-communities and of the greater Palynology community. It would be an honor for me to serve this organization as President-Elect.



Javier Helenes: Received a Geological Engineer degree (equivalent to a B.S. with a major in Geology and a minor in Civil Engineering) in 1976, from the Instituto Politecnico Nacional in Mexico City. He then went to Stanford University to get his M.S. in 1980, studying Miocene foraminifera and stratigraphy from Baja California. He also got a Ph. D. at Stanford in 1984, studying fossil dinoflagellates under William Evitt. From 1984 to 1985, he was a Postdoctoral Research Associate at the Geological Institute at Bern University, Switzerland, working with Eocene foraminifera and stratigraphy from central Switzerland. From 1985 to 1986, he was a professor of Paleontology at the Facultad de Ciencias de la Tierra (School of Earth Sciences) from the Universidad Autonoma de Nuevo Leon (State University of Nuevo Leon, Mexico). From 1986 to 1989, he worked as a biostratigrapher for the oil industry with the Bujak-Davies Group in Calgary, Canada, where he used foraminifera and dinoflagellates, while participating in studies of Cretaceous to Quaternary sections from North, Central and South America. From 1990 to 1994, he was advisor in palynology to CORPOVEN (part of PDVSA) in Venezuela, where he worked in Cretaceous and Tertiary dinoflagellates and stratigraphy from Venezuela. Since 1995 he has been a research scientist at the Department of Geology of CICESE (a federal research center) in Ensenada, Baja California, Mexico. In Ensenada, he teaches courses in Stratigraphy, Micropaleontology, and Fossil dinoflagellates, and has been involved in projects including Jurassic to Quaternary stratigraphy and paleoecology of dinoflagellates from low latitude sections, and the geological evolution of Baja California and the Caribbean region.



Secretary-Treasurer

Thomas Demchuk;

(Sung to the tune of the "Beverly Hillbillies")
Come and listen to my story 'bout a fella named Tom,
Northern city boy, always listened to his mom,
Then one day after doing lots of school
Got his Ph.D., and it seemed pretty cool
Dr. Tom, U. of Calgary, Pollen and Spores.....

Next thing ya' know Tom's doing biostrat
Kin folk said, "Well take a look at that!"
They said Houston, Texas is the place ya' ought to be,
So he loaded up his car and he moved to Katy
Amoco, Suburbs, Swimming pools...

Spent five years there, trying to be keen,
Learned a lot of dinos, tried to keep his nose clean,
Then one day came a chance for him to go
So he packed up his office, and he moved to Conoco
Katty-corner, Less rocks, More talks

Well it's been five years, and a mergers comin' through,
ConocoPhillips is the name they're gonna use,
Don't know what will happen, but he's hopin' for the best
See ya' all in London, and he'll tell you all the rest.

Redundancies, Rightsizing, Budget concerns
Ya' all come back now, ya' hear?...

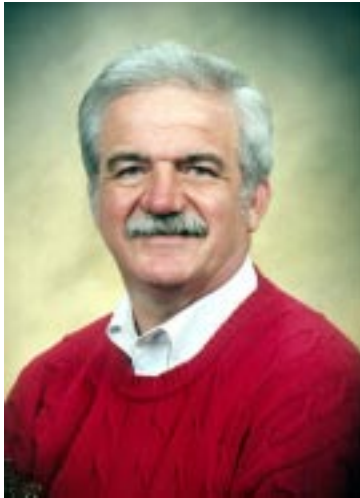
Thomas joined AASP in 1984 while initiating his graduate studies in palynology at the University of Alberta in Edmonton, his home town. He moved on to do his Ph.D. at the University of Calgary, completing his dissertation in 1992. Immediately after, he joined the Exploration and Production Technology Group at Amoco in Houston, where he thoroughly enjoyed his five years (despite the constant interruptions and joking around of Gordon Wood). He moved to Conoco in 1997 to become a Biostratigraphy Coordinator, where he has been up until today. His duties involve overseeing part of Conoco's biostratigraphic activities and data integration in several of their major exploration and exploitation efforts around the world.

Thomas has previously served AASP as Director-at-Large from 1994-1996, and has been involved in the organization of the annual meetings in Banff (1990), Reno (2000) and San Antonio (2001). As you can see, he is a sucker for punishment! He has been Secretary-Treasurer since 1998, and will be more than happy to continue to do so until some unsuspecting soul wishes to take over the membership file and bank accounts. He retains his sanity by keeping out of the line of fire of the latest management and corporate fads, by reading Dilbert daily, and trying to live by the mottos "Keep your stick on the ice!" and "Don't eat yellow snow!", although both are hardly relevant in Houston. It's actually his lovely wife, Marta that keeps him sane and looking to the future. Thomas greatly looks forward to seeing everyone in London and sharing a beverage, or three. Chau!



Managing Editor

Owen Kent Davis is Professor of Palynology, and Director of the Palynology Laboratory and the Antevs Library at the University of Arizona. He teaches classes in Introductory Biology, Biogeography, Quaternary Ecology, and Palynology. He has written over 200 books, papers, and technical reports. He was born March 13, 1949, in Nampa Idaho, received his M.S. in Botany in 1974, and his Ph.D. in Ecology in 1981. His research focus is the late Quaternary vegetation and climate history of arid lands. Owen began attending AASP meetings in 1974, and has been a member continuously since 1982. He has been a member of the Palynology Editorial Board since 1995, and served as Managing Editor since 2000. Owen is also on the Editorial Boards of The Review of Palaeobotany and Palynology, Radiocarbon, Aerobiologia, and the internet journal Conservation Biology. He is Past President of the Arizona-Nevada Academy of Science and the International Federation of Palynological Societies



Director-At-Large

Eddie B. Robertson, Professor of Biology, Reinhardt College, Waleska, 30183. I was first introduced to pollen and spores as a college junior at Alma College. I completed graduate study (M.S., Ph.D.) within the Botany Department of the University of Minnesota. I was an industrial palynologist at Robertson Research (N.A.) Ltd, Mobil Oil, Robertson Research (U.S.), and Phillips Petroleum. In industry, I worked exploration and production as well as research and development. My lifelong research interest is in Tertiary palynology. I have identified myself as a palynologist and have been a member of AASP for the last thirty years, through the ebb and flow of the marketplace. While AASP honors the oil application of the science, it has also been broad enough intellectually to welcome diverse new approaches and those that espouse them. From our common interests, we have evolved a place to be in relationships and a place to mentor. AASP is a point of affirmation outside the walls of my small school by people who have known me and my work over the longer term. AASP provides a place for us to be active and to be our own brand of crazy. It would be a privilege to serve AASP.



Tim Kroeger: I am currently an Associate Professor of Geology at Bemidji State University in Bemidji, Minnesota. Within our small program, I have the opportunity to present classes in several areas of

geology, doing my best to demonstrate applications of palynology to students wherever possible.

In 1985, I completed my M.S. at the South Dakota School of Mines and Technology through study of paleoenvironmental relationships of the palynoflora within the Hell Creek Formation (Upper Cretaceous) of northwestern South Dakota. My Ph.D. work at the University of North Dakota focused on the paleoenvironmental distribution of palynomorphs within Paleocene-aged delta systems within the lower Fort Union Group of western North Dakota. I am currently involved with recognition and dating of minor marine incursion events within the Tongue River Formation (Paleocene) in western North Dakota and eastern Montana. I have been a member of the AASP since 1983. I am encouraged by the Society's recent efforts to present our science in a larger and more diverse venue through joint meetings with other geologic and paleontologic societies. Greater exposure will lead to new, more interdisciplinary ideas for applying palynological results, ultimately leading to a stronger science.



Daniel Michoux is a senior palynologist at TotalFinaElf 's Scientific and Technical Centre in Pau, France. He received his Ph. D. from the Université Curie, Paris in 1981. His research topic was the morphology and stratigraphy of Cenozoic dinoflagellate cysts of south-western France. He then worked for three years as a Research Associate with Université du Québec in Quebec City, Canada, concentrating on the then active offshore Newfoundland exploration province. He moved on in 1985 to join BP-Exploration in Scotland. He was there assigned to the Central North Sea task-force, unraveling the subtleties of the Cenozoic exploration plays and enjoying the beauty of its dinocyst assemblages. He joined Total in Paris, France in 1989. During the course of his carrier as a stratigraphic palynologist he was able to study palynomorphs from a wide geographic and chronostratigraphic range, but his main interest remains Tertiary dinoflagellates.

He joined AASP in the Early eighties and is currently on the board of the tropical Neogene dinoflagellate working group, a.k.a CocoDinos. He is a regular attendee of AASP

meetings. He is also a member of APLF, the French-speaking palynologists' association. He believes that AASP, with members coming from all fields of palynology, strikes the right balance between academic research and industrial applications, and will work to ensure the continuing success of the Association.



Iraida Paredes: I got a degree in Biology in 1976 from the "Universidad Central de Venezuela". Then I got a Master Degree at the "Instituto Venezolano de Investigaciones Cientificas" (IVIC) in Biology. In 1979 I got employed by PDVSA-Intevp (state owned oil company) where I am working now as a researcher and project leader in the Stratigraphy group. Between 1980 and 1981 I received training in biostratigraphy (palynology and calcareous nannoplankton) at the Federal Institute of Technology (ETH) in Zurich, at the University of Amsterdam and Robertson Research in North Wales. Since 1982 I have been involved in many different projects as a researcher and project leader in stratigraphic studies of the Cretaceous and Cenozoic sections of Venezuela. As a biostratigrapher I have been mostly working with Cretaceous, Paleogene and Neogene pollen, spores and dinoflagellate cyst. In 2001 we got interested in Paleozoic and early Mesozoic rocks of Venezuela. In this project I am getting new expertise with acritarchs. I first attended an AASP meeting in 1986, and has been a member since 1982.

NEWS FROM AUSTRIA, GERMANY AND SWITZERLAND

March 2002

compiled by Jörg Pross (joerg.pross@uni-tuebingen.de)

Darmstadt University of Technology: Palynology is a field of research at Darmstadt University of Technology since Susanne Feist-Burkhardt became a staff member at the Department of Geology in 1993. In the following years and in close cooperation with Annette Götz, Susanne taught several short courses on palynology and palynofacies for students interested in integrating palynological and sedimentological data. As a result, the Darmstadt "Working Group Applied Palynology" developed a strong interest in the palynofacies analysis of Mesozoic carbonate systems, high-resolution stratigraphy, and paleoenvironmental interpretations based on sedimentological and palynological signals. In 1999, "DINO '99" - the first annual meeting of German-speaking workers on fossil and recent dinoflagellates - was held in Darmstadt. Since then, the yearly DINO meetings have developed in informal come-togethers of both geologists and biologists interested in dinoflagellate research. A British-German collaboration started when Susanne Feist-Burkhardt moved to London after becoming a palynology researcher at the Natural History Museum in 2001. Current joint projects are on the Mid-Triassic of the epicontinental Germanic Basin and northern Tethyan margin, the Mid-Jurassic (Bajocian) of western and Central Europe, and the Upper Cretaceous (Coniacian) of SE France. Palynological studies on the Upper Triassic (Rhaetian) of the Northern Calcareous Alps are carried out in collaboration with the University of Frankfurt and the Senckenberg Institute in Frankfurt. For further information please visit the group's homepage at <http://www.tu-darmstadt.de/fb/geo/gpi/palaeont/palysedi.htm>.

University of Göttingen: Thomas Bode received a doctoral degree in Geosciences with his thesis entitled "A data base system (PAST) for processing and interpreting palynological data from the Palaeogene of Central Europe - application to diversity studies". The first part of his thesis presents an outline of a newly developed computer expert system PAST (Pollen And Spores of the Tertiary). The system permits partly automated data input and processing which greatly reduces the time, error, and redundancy commonly involved in handling palynological information. The second part of Thomas' thesis is devoted to diversity considerations at various scales of time and space within the Palaeogene of Germany. Emphasis is placed on the relationship between diversity and facies and the problem whether statistical methods allow to isolate sorting effects. As much ecological information as possible regarding the nearest living relative (e.g. azonal parameters and climate dependence) is included in the data base and fossil pollen and spores are grouped accordingly. Thus, the ecological interpretation of palynological results may be standardized and therefore greatly improved. Pollen diagrams of sections from Schöningen (Early Eocene, Helmstedt) and Alversdorf (Middle Eocene, Helmstedt) as well as Witznitz (Late

Oligocene, Leipzig) are presented and discussed, demonstrating the effectiveness of the data base system. Further information is available from Thomas Bode (tbode@gwdg.de).

University of Zürich and Swiss Federal Institute of Technology in Zürich: Within the interdisciplinary project "Paleoseis", a study aiming to decipher the Quaternary seismic activity in NW Switzerland and SW Germany, Giuseppe Sampietro is currently involved in a Ph.D. thesis on reconstructing the Würmian to Holocene vegetation and climate history of that region. Palynology will serve as a tool to date potentially earthquake-related deformations in lake sediments. Principal investigators of the project are Conradin Burga (University of Zürich; vegetation history), who recently also published an 800-page synthesis of the vegetation and climate history in Switzerland during the later Pleistocene and Holocene together with Roger Perret (published by Ott-Verlag, Thun/Switzerland) and Arnfried Becker (Swiss Federal Institute of Technology in Zürich; geophysical exploration). Further information is available from Conradin Burga (cburga@geo.unizh.ch) or Giuseppe Sampietro (gsampi@mail.geo.unizh.ch).

Announcement: Upcoming Fourth German Interdisciplinary Meeting on Dinoflagellates: The "Viertes deutschsprachiges Dino-Treffen" (Fourth annual meeting of german-speaking workers on fossil and recent dinoflagellates) will be held on the Island of Helgoland from September 19th to 21st, 2002. Researchers from all disciplines of dinoflagellate research (biology, palaeontology) are welcome to discuss results and exchange ideas in a relaxed, informal atmosphere - as are, of course, international visitors. The second circular of the meeting will be available by the end of March. For further information please contact Mona Hoppenrath (mhoppenrath@awi-bremerhaven.de).

NEWS FROM THE UK

by Jim Riding

I mentioned in the last issue, that the British Micropalaeontological Society (BMS) had recently voted to change its name to The Micropalaeontological Society (abbreviated TMS). The Society was born in 1970 as a result of a campaign initiated by the eminent palynologist Professor Leslie Moore of Sheffield University. Back then it was known as the British Micropalaeontological Group (BMG). Leslie wished to unite all micropalaeontologists working on the UK succession into a single learned body in order to aid the study and disseminate the results of all research on microfossils throughout Britain. Principally, the BMG held regular meetings and it was not until 1982 that the society issued a Journal. By that time, BMG had morphed into the BMS and The Journal of Micropalaeontology became the vehicle whereby the BMS became a truly international organization, with members on every continent, similar to AASP. However,

in recent years, it became clear that some micropalaeontologists who are not based in the UK viewed BMS as somewhat parochial as a result of 'British' being an integral part of the name of the Society. A similar name change was discussed some years ago and, in the late 1990s, the membership narrowly voted not to change the name. However an informal poll last year overwhelmingly voted for change and this was formally ratified at the 2001 Annual General Meeting in London during November. The committee unanimously backed the change and see this as an opportunity to relaunch the Society, which has six active specialist microfossil groups including Palynology. We would like to expand the membership base in order to underpin, and hopefully expand, our publishing activities and the program of meetings. The Society is unequivocally an international one and we wish the name to accurately reflect this fact. The core business, i.e. the promotion of the study of microscopic fossils, will not change one iota.

This Newsletter may well be issued too late for effective publicity for the next Micropalaeontological Society Palynology Group meeting. This will be held at the Department of Palaeontology, The Natural History Museum (NHM), Cromwell Road, South Kensington, London on Wednesday 13th March 2002, between 1.00 and 5.00pm. It has been organized by the Chair and Secretary of the Palynology Group, Susanne Feist-Burkhardt and Paul Dodsworth respectively. In addition to several talks covering marine and terrestrial palynology from the Palaeozoic to Recent (there is no specialist theme), there will be the opportunity to view the palynological facilities at the NHM. These include a demonstration of the Museum's latest imaging facilities such as the confocal laser scanning microscope, a tour of the laboratory and an introduction to the legendary John Williams card index reference collection. I apologize for the fact the scheduling of this meeting and the timing of this Newsletter has not been in phase. AASP members are, of course, most welcome to attend. I will provide a report in the next issue.

Plans continue to advance for the AASP/NAMS/TMS meeting in London this coming September. The latest news is that Owen Davis has offered to convene a symposium on the palynology of coprolites, as part of the general palynology sessions. It would help the organizers greatly if all interested attenders informed Jamie Powell (ajp@dinosystems.co.uk) of their intention to participate. Please respond to the forms at the back of this Newsletter.

RESTRUCTURING OF PALYNOLOGY IN SHEFFIELD

In 1999, the Centre for Palynology in the University of Sheffield was transferred from the departments of Earth Sciences to Animal & Plant Sciences. As part of an ongoing process of integration of research interests and activities, decisions have now been taken to re-orientate future palynological studies within the research framework of the new parent department. Future studies will endeavor to develop a more specific theme in areas of biodiversity, taxonomy, evolution, biogeography and ecology although these elements are still seen as important components of biostratigraphy.

The impact of the changes will be limited. The newly commissioned Palynology Laboratory will continue to undertake both commercial and research projects. Additional technical support will be available. All staff will remain in post but will transfer to new office accommodation in the Animal & Plant Sciences building. The extensive slide and literature collections are safeguarded and will also transfer to new facilities. All of these changes will be completed by early 2002.

The most noticeable change however will be renaming. No longer does Palynology fit the configuration of a "Centre" in the University's application of the term. In future it will be rebadged as the "Palynology Research Facility".

Facilities will continue to be available for postgraduate research for Ph.D. and M.Phil. degrees. All enquiries related to postgraduate studies should be directed to:

Postgraduate Admissions Officer (Palynology)
Department of Animal & Plant Sciences
University of Sheffield
Alfred Denny Building
Western Bank
Sheffield S10 2TN

For other enquiries or information contact.

Prof. Bernard Owens, 01142 223691,
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A NEW RESEARCH CENTER OF PALEONTOLOGY ESTABLISHED IN CHINA

Submitted by: D.M. Jarzen & Ge Sun

The new research center of paleontology— Research Center of Paleontology and Stratigraphy has been established in the Jilin University in Changchun, China. The research center consists of seven departments, one editorial department and one exhibition section. The

research departments include Early Life, Invertebrate Paleontology, Vertebrate Paleontology, Micropaleontology, Paleobotany and Palynology, Applied Paleontology, and Stratigraphy. There are about 60 scientists and administrative staff, including several honorary professors and guest scientists abroad, currently working in the center. The research building, about 1800 m² with three floors, has been under construction including the laboratories and library since the last June and should be completed July, 2002. Jilin University was granted more than 4 million Chinese dollars (ca. US\$ 500000) for the construction in 2001 and will continuously receive financial support to the research center in 2002 and the near future.

Jilin University is a new combined university as of June, 2000 and is a part of the Ministry of Education, China. The university has combined five previous universities in Changchun, including the Ex-Jilin University, Jilin University of Technology, Changchun University of Science & Technology, The Norman Bethune University of Medicine and Changchun University of Telecommunication. Presently, the combined university includes 70,000 people with about 50,000 students and 8,500 graduate students, and has become the largest university in China's university system.

Prof. Dr. G. Sun, Vice-President of the IOP and Vice-Chairman of the Paleobotanical Society of China, was invited and has been appointed by the university as the Director of the Research Center of Paleontology and Stratigraphy beginning August, 2001.

The new Chinese Research Center will carry out its work internationally. The center has several programs for foreign students and visiting scientists, including the Student Program for Masters and Ph.D. degrees, Post-doctoral research, Visiting Scholarships for various terms and some cooperative research projects. Prof. Dr. D.L. Dilcher (University of Florida, USA) is Honorary Professor and Vice-Chairman of the Scientific Committee of the center, Prof. Dr. V. Mosbrugger (University of Tuebingen, Germany) is also Honorary Professor and Member of the Scientific Committee.

A new international publication, "Journal of Geosciences in Northeast Asia" will be published in English, at the Research Center. The journal editorial department welcomes your contributed manuscripts. You may contact the center at: Research Center of Paleontology & Stratigraphy, Jilin University, 6, Xi-Minzhong Str., Changchun 130026, China

Tel: +86-431-8502487, 8502427, 8502598, Fax: +86-431-8502487, 8502427, E-mail: sunge@jlu.edu.cn

ENVIRONMENTAL CHANGE AT THE TIME OF THE PALEOCENE-EOCENE BIOTIC TURNOVER

Introduction and synopsis of the Ph. D thesis by Erica Crouch, Institute of Geological and Nuclear Sciences, 69 Gracefield Road, P.O. Box 30-368, Lower Hutt, New Zealand, Ph: + 64 04 5704810, Fax: + 64 04 5704600, e-mail: E.Crouch@gns.cri.nz. The research was carried out at the Laboratory of Palynology and Palaeobotany, Utrecht, The Netherlands. Please contact Erica for more information, or a copy of the thesis.

Introduction

The Paleogene (~65.0 to 23.8 Ma) represents the transition of the Earth's climate from a uniformly warm 'greenhouse' world to a cooler, more heterogeneous 'icehouse' world (Fig. 1). Superimposed onto this general trend, however, are prominent long- and short-term intervals in which the Earth's climate experienced dramatic changes. The four epoch transitions of the Paleogene are each distinguished by significant perturbations in the earth-atmosphere-hydrosphere system and are reflected by important biotic turnovers. Of these transitions, the Paleocene-Eocene (~55 Ma) transition is unique in that it is apparently entirely endogenic in nature and took place against a background of unprecedented globally warm climates in

an ice-free world. Indeed, the Paleocene-Eocene transition, along with the early Eocene climatic optimum (~52 to 50 Ma) (Fig. 1), were the warmest intervals of the entire Cenozoic (last ~65 Ma). While recognition of intervals in which the Earth's climate changed abruptly are becoming better resolved, the underlying causes and mechanisms of these climatic changes are less well understood.

The Paleocene-Eocene (P-E) transition is recognized as a critical turning point in Cenozoic reorganization of the biosphere involving evolutionary turnover among both terrestrial and marine organisms (Berggren et al., 1998). Detailed investigations of this crucial period will lead to a better understanding of the dynamics of the Earth environment and the impact that climatic and oceanographic changes have on Earth's biota (Berggren et al., 1998). Moreover, major perturbations of the global carbon cycle during this transition suggest carbon release by natural processes on timescales and rates similar to those of modern rates of anthropogenic carbon input (Dickens, 1999).

The late Paleocene and early Eocene interval (~57.4 to 53.4 Ma) has been associated with important changes in carbon cycling and global climate, along with plate tectonic processes (e.g., North Atlantic rifting, India-Asia

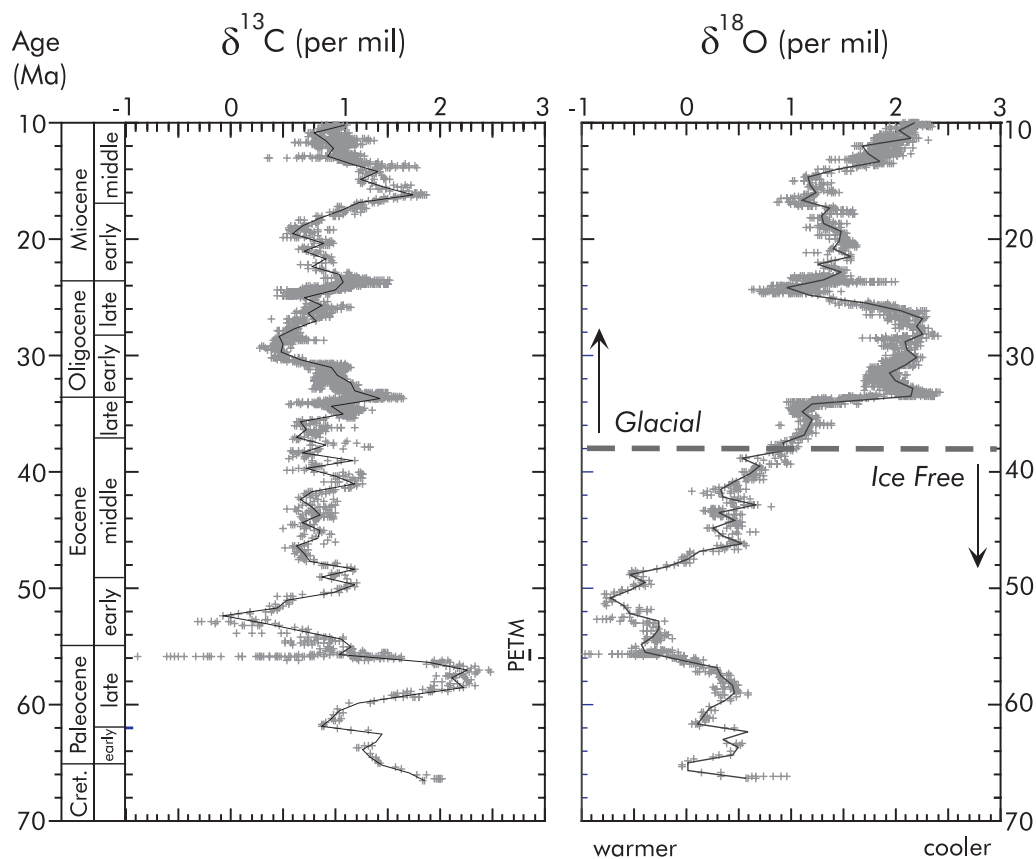


Figure 1. Global deep-sea oxygen (^{18}O) and carbon (^{13}C) isotope records over the Cenozoic (65 million years to present) based on data compiled from more than 40 DSDP and ODP sites (Zachos et al., 2001). Most of the data are derived from analyses of two common and long-lived benthic taxa, *Cibicides* and *Nuttallides*. PETM = Paleocene-Eocene thermal maximum.

collision) and oceanic circulation (e.g., Zachos et al, 1994; 2001). Global warming began during the mid Paleocene (~59 Ma) and continued across the P-E transition, peaking during the early Eocene climatic optimum (~52 to 50 Ma) (Fig. 1). In general, this warming trend is coincident with a long-term decrease of carbon isotopic values that began ~57 Ma (Fig. 1). Latitudinal sea surface temperature gradients were apparently much reduced relative to the present-day, with high latitude values being notably warmer than current values (e.g., Zachos et al, 1994). Warm water pelagic marine organisms and thermophilic vertebrates have been recorded from polar latitudes, and warm high latitudes are indicated by vegetation and soil-types. Reconstructions of atmospheric CO₂ concentrations further attest to warm climates, with estimates for the late Paleocene-early Eocene ranging between ~600 and >2,000 ppmv (e.g., Pearson and Palmer, 2000; Retallack, 2001; Kürschner et al., 2001; Royer et al., 2001).

Superimposed onto the background of this equable world, is an abrupt, short-lived and intense warming event (e.g., Zachos et al, 1993; Norris and Röhl, 1999), currently referred to as the Paleocene-Eocene thermal maximum or PETM (Placement of the Paleocene-Eocene boundary: At present the Paleocene-Eocene (P-E) epoch boundary is without a rigorously defined Global Stratotype Section and Point (GSSP). However, in a recent (July 2001) conference entitled 'Climate and Biota of the early Paleogene' the working group on the P-E boundary of the International Subcommission on Paleogene Stratigraphy (ISPS) confirmed that the global carbon isotope excursion (CIE) is the most suitable criterion to define the P-E boundary. Hence, in this thesis the P-E boundary is placed at the beginning of the carbon isotope excursion (CIE). The lack of an unequivocal definition of the P-E boundary has often led to confusion and complication in descriptions of important climatic and biotic change that occurred during the late Paleocene and early Eocene. A prominent example of this is the CIE and the cluster of stratigraphic events associated with the CIE. For many years this climatic aberration has been widely referred to as the late Paleocene thermal maximum or LPTM (Zachos et al., 1993). Since confirmation that the placement of the P-E boundary will be at the position of the CIE, the working group on the P-E boundary now recommends that this event be referred to as the Paleocene-Eocene thermal maximum or PETM. This recommendation is followed in this thesis.) This climatic aberration (i.e., a brief anomaly that stands out well above "normal" background variability in terms of rate and/or amplitude) is characterized by a prominent 2-3 ‰ negative carbon isotope excursion (CIE) of the marine, atmospheric and terrestrial carbon reservoirs (Zachos et al., 2001). In well-dated isotope records, ¹³C steps down within 20 kyr and then returns logarithmically to near initial values over ~220 kyr (Röhl et al., 2000). Rapid warming by 5 to 6°C occurred in deep oceans, and sea surface temperatures increased by as much as 8°C at higher latitudes and lesser amounts towards the equator. This event is also marked by widespread dissolution of seafloor carbonate. Significant marine biotic changes include a prominent benthic foraminiferal extinction event and turnovers in planktonic organisms (e.g., planktonic foraminifera, calcareous nannoplankton). Terrestrial mammal orders underwent a fundamental diversification, which principally involved replacement of an archaic fauna (e.g., Mesonychia and Plesiadapiformes) by a more modern mammalian fauna (e.g., primates, perissodactyls (odd-toed ungulates) and artiodactyls (even toed ungulates) (e.g., Beard, 1998; Clyde and Gingerich, 1998).

The magnitude, shape and global nature of the CIE indicate a massive injection of ¹²C-rich carbon into the ocean-atmosphere system. Currently, the favored source for the carbon input is release of isotopically light (~-60 ‰) methane from seafloor gas hydrates (e.g., Dickens, 2000). Although other sources of CO₂ have been considered (e.g., volcanism) no other reservoir contains a large enough mass of carbon sufficiently enriched in ¹²C (e.g., Dickens et al., 1995). Suggested triggering mechanisms for the abrupt and massive injection of ¹²C-rich carbon include gradual crossing of a thermal threshold via long-term deep-sea warming (Dickens et al., 1997), more abrupt deep-sea warming resulting from sudden changes in oceanic circulation (Bralower et al., 1997) and massive regional slope failure (Katz et al., 1999).

A pronounced feature of the P-E transition is that global physical and geochemical changes concomitantly affected both marine (e.g., benthic foraminifera) and terrestrial (e.g., mammals) biota. However, correct identification of the temporal sequence and distribution of biotic events requires detailed examination and is often hampered by difficulties in accurately correlating between marine and terrestrial realms. One solution to this problem is to carry out high-resolution investigation of well-correlated marine sediments, in which terrestrial (spores and pollen) and marine (mainly organic-walled dinoflagellate cysts; dinocysts) palynomorphs occur together. Examination of primary producers, such as land plants and dinoflagellates, can provide a better appreciation of environmental change during times of biotic turnover.

While a substantial amount of information is currently available regarding biogeochemical changes during the P-E transition, most data comes from Northern Hemisphere localities. Recognition of equivalent successions in the Southern Hemisphere is rather sparse due to limited landmass distribution and a comparatively short-lived history of geological research. By the time of the P-E transition New Zealand was an isolated landmass, situated at ~50° to 70°S, and encompassed depositional settings from terrestrial swamps to marine basins. Investigation of present day land-based sequences in New Zealand offers the potential to substantially increase knowledge of conditions and development of a 'greenhouse' world in a Southern Hemisphere region, which is sensitive to climatic and environmental changes. In addition, detailed and well-calibrated palynomorph studies from lower latitude are sparse. Further information from these regions (in this thesis two sequences are examined from the Tethyan Basin) is necessary in order to provide a more global view of biotic and environmental change, and recognition of migration patterns and correlation between Hemispheres.

Considering the above two paragraphs, two outstanding issues associated with better understanding of global biotic and environmental change during the P-E transition are (1) difficulties in correlating between

marine and terrestrial realms, and (2) a lack of detailed well-calibrated records from the Southern Hemisphere. Moreover, detailed records of biotic response during the P-E transition can provide further insight into the mechanisms and underlying causes of environmental change during this unique time interval. In this thesis, we address these problems by applying a marine palynological approach and investigating selected marine successions in New Zealand and the Tethyan Basin. Furthermore, integrating palynological results from this thesis with equivalent records from mid- to high-latitude Northern Hemisphere settings can contribute to temporal and spatial recognition of globally significant and/or synchronous bioevents and migration patterns of marine plankton (dinocysts) and land plants.

Synopsis

To discriminate between specific bioevents associated with the 'greenhouse' world of the P-E transition, well-calibrated and detailed marine records are needed. Cumulative research in New Zealand has resulted in a reasonably good biostratigraphic framework for the Paleogene, although the existing late Paleocene-early Eocene dinocyst zonation scheme lacks the necessary resolution and calibration with other microfossil groups. Hence, in Chapter 1 dinocyst assemblages are examined from three marine sequences that span the P-E transition; one from an oceanic setting, but deposited relatively close to land (Tawanui), with good calibration and two from more proximal settings (Moeraki-Hampden and Measly Beach core). Dinocyst assemblages are relatively stable in the late Paleocene, while the P-E boundary is notably marked by the onset of Apectodinium-dominated assemblages, and several qualitative and quantitative bioevents are recognized in the early Eocene. Conspicuously, the general pattern of dinocyst changes across the P-E transition is remarkably similar to equivalent records from Northwest Europe. Dinocyst assemblages indicate that the most complete P-E transition is at Tawanui and based primarily on this record a new succession of New Zealand dinocyst zones and subzones is proposed for the P-E transition; NZP5, NZE1 (a and b), NZE2 (a and b) and NZE3. The scheme is correlated with international calcareous nannoplankton zones and the carbon isotope excursion.

The improved resolution and calibration of dinocyst bioevents across the P-E transition can provide a better understanding of these variations in a paleoecological sense. In Chapter 2, quantitative palynological associations at Tawanui and Moeraki-Hampden are re-examined and more focus is given towards interpretation of marine (dinocyst) and terrestrial (plant) changes. Palynological associations at both sequences significantly fluctuate across the P-E transition. The onset of major change in dinocyst assemblages coincides with the intense warmth of the PETM, and changes in sea surface temperature (SST) appear to have been the principal environmental parameter that affected dinocysts. While the P-E transition is characterized by warm SSTs, the occurrence of Apectodinium-dominated assemblages is taken to indicate brief intervals of even higher

SSTs and two such periods are recognized: during the PETM and in the early Eocene. This agrees with recent suggestions that additional 'hyperthermals' occurred during the late Paleocene-early Eocene interval. A marked increase in the supply of nutrients into the Tawanui region also coincides with the PETM. High numbers of probable heterotrophic dinocysts indicate that surface waters remained relatively eutrophic for up to 0.5 Ma after the P-E boundary. Sea level changes played a minor role across the P-E transition in the open marine setting of Tawanui. In contrast, spore and pollen assemblages suggest that plant communities remained relatively stable across the P-E transition, with the predominant vegetation consisting of a conifer-dominated multistratal rainforest. Notably, lower-latitude coastal *Nypa* mangroves were established by the latest Paleocene. The most distinct change in vegetation occurred at least 1.5 Ma after the P-E boundary, represented by an increase in mesothermal-megathermal angiosperm plants.

Over the last 65 Ma, the most pronounced thermal and carbon cycle perturbations occurred during the Paleocene-Eocene thermal maximum (PETM). The following three chapters focus in detail on the response of marine dinocysts and land plants during this remarkable climatic aberration.

In Chapter 3, the dinocyst record across the PETM at Tawanui is combined with an equivalent record from a well-calibrated sequence in Austria, Northern Hemisphere, to assess the precise timing and global nature of the dramatic response of representatives of Apectodinium during the PETM. The results indicate that the inception of Apectodinium-dominated assemblages appears to be synchronous on a global scale, and that the event is coincident with the beginning of the carbon isotope excursion (i.e. PETM). Apectodinium markedly declined in abundance near the end of the PETM. Such a globally significant dinocyst acme is unprecedented within the fossil record.

While motile representatives of Apectodinium are thought to have been thermophilic and heterotrophic, the underlying environmental conditions leading to the global Apectodinium acme are not well understood. In Chapter 4, palynology and geochemistry of rock samples across the PETM at Tawanui are examined to establish temporal relationships between changes in Apectodinium abundance and other variables, principally proxies for terrestrial discharge and primary productivity. Across the PETM, marked changes in the relative abundance of Apectodinium vary antithetically with significant changes in the ^{13}C of carbonate and organic matter. In general the high in Apectodinium abundance relates to an enhanced concentration of dinocysts, implying that a 'bloom' of motile representatives of Apectodinium occurred in surface waters during the PETM. Changes in Apectodinium and ^{13}C correspond with increased terrestrial palynomorphs, elevated C/N ratios, lower carbonate concentrations, higher SiO_2 and Al_2O_3 , and lower Ba/Al. All of these variations can be explained by an

increase in delivery of terrigenous material to the Tawanui region. The results agree with growing evidence for increased terrigenous input to the ocean during the PETM, most likely a result of enhanced weathering in response to a sudden and massive carbon injection to the ocean-atmosphere system. This concept is further developed by suggesting that this phenomenon directly caused the Apectodinium acme.

The knowledge of terrestrial plant response during the PETM is currently rather sparse. Hence, in Chapter 5 terrestrial spores and pollen across the PETM at Tawanui are examined in order to detect to what extent vegetation in mid- to high-latitudes responded to the climatic perturbations. Assemblages remain relatively stable across the PETM and are dominated by pollen from an araucarian conifer, *Dilwynites granulatus*. The predominant plant community appears to have been a conifer-dominated multistratal rainforest, suggestive of a warm climate with high rainfall. The PETM is not associated with significant immigrations or turnovers in plant communities, although lower latitude *Nypa* mangroves are established by this time. The subtle microfloral variations across the PETM may reflect an increase in the terrestrial runoff regime to the Tawanui region.

It is evident from this thesis, and other recent studies, that the most profound change in dinoflagellates across the P-E transition involved representatives of Apectodinium. To better understand the global distribution and abundance of this genus across the P-E transition, in Chapter 6 dinocyst assemblages are examined from two well-calibrated sections (Elles and Aktumsuk) in the Tethyan Basin. Apectodinium appears to have evolved in lower latitudes and is a regular component of assemblages in these regions. The genus is present at the base of the Elles section (late Paleocene; planktonic foraminifera Subzone P4a) and comprises ~20 to 80 % of the assemblage from the late Paleocene to early Eocene. It appears that the PETM at lower latitudes is characterized by high percentages of Apectodinium, although it may not always dominate assemblages. Other dinocyst genera with thermophilic preferences may be abundant during the PETM. At mid- to high-latitudes, Apectodinium has been sporadically recognized during the late Paleocene and the PETM at these latitudes is uniformly characterized by Apectodinium-dominated assemblages. In the early Eocene additional Apectodinium acmes are recognized, although as yet it is unclear if these are globally isochronous. Intervals of Apectodinium-dominated assemblages are indicative of environmental conditions that were apparently markedly different to 'normal background settings' of the late Paleocene-early Eocene. Sea surface temperature (SST) is the main control in the distribution of the genus since Apectodinium acmes in mid- to high-latitudes seem to occur during intervals of highest SSTs, such as the PETM. In addition, Apectodinium 'blooms' are intricately linked to enhanced runoff and increased delivery of nutrients in surface waters, probably as a result of intensification of the weathering cycle, and other

possible specific oceanic conditions such as stratified water masses.

References

- Beard, K.C., 1998: East of Eden: Asia as an important center of taxonomic origination in mammalian evolution. In: Beard, K.C. and Dawson, M.R. (Editors). Dawn of the age of mammals in Asia. Carnegie Museum of Natural History bulletin, 34.
- Berggren, W.A., Lucas, S., and Aubry, M.-P., 1998: Late Paleocene-Early Eocene climatic and biotic evolution: an overview. In: Aubry, M.-P. et al. (Editors). Late Paleocene-Early Eocene climatic and biotic events in the marine and terrestrial records. Columbia University Press. 1-17.
- Bralower, T.J., Thomas, D.J., Zachos, J.C., Hirschmann, M.M., Röhl, U., Sigurdsson, H., Thomas, E., and Whitney, D.L., 1997: High-resolution records of the late Paleocene thermal maximum and circum-Caribbean volcanism: Is there a causal link? *Geology*, 25: 963-966.
- Clyde, W.C., and Gingerich, P.D., 1998: Mammalian community response to the latest Paleocene thermal maximum: An isotaphonomic study in the northern Bighorn basin, Wyoming. *Geology*, 26: 1011-1014.
- Dickens, G.R., 1999: Carbon cycle: The blast in the past. *Nature*, 401: 752-755.
- Dickens, G.R., 2000: Methane oxidation during the late Paleocene thermal maximum. *Bulletin de la Société Géologique de France*, 171: 37-49.
- Dickens, G.R., O'Neil, J.R., Rea, D.K., and Owen, R.M., 1995: Dissociation of oceanic methane hydrate as a cause of the carbon isotope excursion at the end of the Paleocene. *Paleoceanography*, 10: 965-971.
- Katz, M.E., Pak, D.K., Dickens, G.R., and Miller, K.G., 1999: The source and fate of massive carbon input during the latest Paleocene thermal maximum. *Science*, 286: 1531-1533.
- Kürschner, W.M., Wagner, F., Dilcher, D.L., Visscher, H., 2001: Using fossil leaves for the reconstruction of Cenozoic paleoatmospheric CO₂ concentrations. In: Gerhard, L.C. et al. (Editors). Geological perspectives of global climate change. 169-189.
- Norris, R.D., and Röhl, U., 1999: Carbon cycling and chronology of climate warming during the Paleocene/Eocene transition. *Nature*, 401: 775-778.
- Pearson, P.N., and Palmer, M.R., 2000: Atmospheric carbon dioxide concentrations over the past 60 million years. *Nature*, 406: 695-699.
- Retallack, G.J., 2001: A 300-million-year record of carbon dioxide from fossil plant cuticles. *Nature*, 411: 287-290.
- Röhl, U., Bralower, T.J., Norris, R.D., and Wefer, G., 2000: New chronology for the late Paleocene thermal maximum and its environmental implications. *Geology*, 28: 927-930.
- Royer, D.L., Wing, S.L., Beerling, D.J., Jolley, D.W., Koch, P.L., Hickey, L.J., and Berner, R.A., 2001: Paleobotanical evidence for near present day levels of atmospheric CO₂ during part of the Tertiary. *Science*, 292: 2310-2313.
- Zachos, J.C., Lohmann, K.C., Walker, J.C.G., and Wise, S.W., 1993: Abrupt climate change and transient climates during the Paleogene: A marine perspective. *Journal of Geology*, 101: 191-213.
- Zachos, J.C., Stott, L.D., and Lohmann, K.C., 1994: Evolution of early Cenozoic marine temperatures. *Paleoceanography*, 9: 353-387.
- Zachos J.C., Pagani, M., Sloan, L.C., Thomas, E., and Billups, K., 2001: Trends, rhythms, and aberrations in global climate 65 Ma to present. *Science*, 292: 686-693.

The absolute ages are taken from Berggren et al. (1995). Diagram taken from Zachos et al. (2001).

BOOKS

Review 1:

Dinosaurs under the Big Sky by Jack Horner. ©2001. Mountain Press Publishing Company, P.O. Box 2399, 1301 South Third Street West, Missoula, Montana 59806. 208 pages. \$20.00.

Review by Reed Wicander, Department of Geology, Central Michigan University, Mt. Pleasant, Michigan 48859

Written by world famous dinosaur expert Jack Horner, *Dinosaurs under the Big Sky* is a wonderful compendium of the dinosaurs and other vertebrates that roamed the lands of Montana during the Mesozoic Era. As Jack Horner states in the Introduction on page 2, "This book is the book I wish I'd had when I was an amateur paleontologist exploring and collecting dinosaur fossils. This book describes the different species of dinosaurs known from Montana, explains the scientific importance of dinosaur bones and skeletons, and discusses how amateur paleontologists can help professional paleontologists."

Divided into eight chapters, two appendices, a glossary, additional reading, and index, this profusely illustrated book is an excellent introduction to the world of dinosaurs. In the Introduction (Chapter 1), Jack Horner tells how he got interested in paleontology and dinosaurs in particular and then discusses the importance of amateur collectors to the field of paleontology. Mr. Horner then discusses who owns the land and fossils and why you must get permission and/or permits before collecting. This is followed by a brief description on collecting and recording your discoveries, the purposes of museums, and the monetary value of dinosaur fossils. In the last half of the Introduction Mr. Horner talks about how species are named and classified, and then gives one of the clearest and easiest to understand explanations about cladistics and how that classification scheme relates to dinosaurs.

Chapter 2 covers geologic time, Montana's geology, and taphonomy, particularly as it relates to dinosaurs. Included in the discussion of taphonomy are such topics as the preservation of skeletal remains, soft tissue, footprints, eggs and nests, as well as coprolites and gizzard stones. Chapter 3 is a history of dinosaur collecting in Montana, complete with historical photos of the first *Tyrannosaurus rex* skeleton site excavated by Barnum Brown in 1903. In fact, the first dinosaur remains as well as the first dinosaur eggshell reported in the Western Hemisphere comes from Montana. Chapter 4 gives the geologic history of Montana and vicinity for each period of the Mesozoic. In addition, a listing of the plant, invertebrate, nondinosaurian, and dinosaur vertebrate fossils from selected Jurassic and Cretaceous formations in Montana is given in this chapter.

Chapter 5, which is the meat of this book, covers the dinosaurs and other Mesozoic fossils of Montana. Its stated aim is to help amateur and professional

paleontologists identify some of the more common bones found in Mesozoic-age rocks of Montana. The chapter is organized by geological formation and time period and includes all the dinosaur taxa identified from each formation with descriptions of common elements. The various bones and elements are illustrated by line drawings as well as many color photographs, all with scales to help in identification. In addition, there is a short discussion of each dinosaur, including its size and weight.

Chapter 6 covers pseudofossils - dinosaur bone and egg look-alikes, while Chapter 7 discusses the collection, preservation, and curation of vertebrate fossils. Chapter 8 lists and discusses some of the museums and dinosaur dig sites in Montana, while Appendix I lists some State and Federal agencies that manage land in Montana. Appendix II covers almost everything the amateur and interested lay person would want to know about the skeletal details of dinosaurs. The first section of this appendix discusses general skeletal features and this is followed by information about the specific parts and regions of a dinosaur such as the skull, vertebrae, front leg, and hind leg.

Lastly there is a Glossary of important terms, and an up-to-date Additional Reading section covering popular and scientific books that refer to both Montana dinosaurs and dinosaurs from other states, as well as a listing of scientific publications about Montana dinosaurs. An Index completes this excellent book.

One of the things I liked about this book was its conversational style and its more than 290 illustrations. While the focus is on the dinosaurs of Montana, there is a lot of information about dinosaurs in particular and the excitement of dinosaur collecting. This includes some very practical advice to the would-be collector, particularly about the importance and reasons for getting permission before collecting, something many amateurs are not as knowledgeable about as they should be. I would certainly recommend this book to anyone interested in dinosaurs and how dinosaurs are collected, named, classified, and studied.

Review 2:

Atlas of Pollen and Spores of the Polish Neogene, Volume 1 - Spores. Edited by L. Stuchlik, 2001. W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków, Poland. ISBN 83-85444-79-3, 158pp., US\$40.00, [78,00PLN]

Reviewed by: David M. Jarzen, Florida Museum of Natural History, University of Florida, Gainesville Florida, USA.

The current volume is the first in a series of four volumes that will, by the year 2006, treat the spores and pollen of gymnosperms and angiosperms of the Polish Neogene. Leon Stuchlik has edited the spore volume which includes contributions from six other researchers, whose goal was to provide a synthesis of pollen studies

from the Polish Neogene over the past 50 years. This is a formidable task, as more than 300 pollen floras have been included in this rather slim publication (158pp.).

The bulk of the text is devoted to an alphabetical listing of taxa, with synonymy, descriptions, stratigraphic distribution, distribution in Poland, botanical affinities, the geographic occurrence of corresponding recent taxa, and when needed general remarks. Overall the work is clean, consistent and appears complete. The editor has included an insert sheet containing the known errata for the entire text. Many of these corrections or omissions involve typographical errors and in my opinion do not seriously detract from the purpose of the publication.

Forty-two plates with an average of 20-25 light microscopy photomicrographs per plate are included to illustrate the taxa covered in the systematic section. These photographs are for the most part clear, sharp and with sufficient contrast. The individual figures are however trimmed, and in some cases obscure the fine surface detail at the margins of the spores.

The volume should prove to be of value to palynologists concerned with the stratigraphy and palynology of the European Neogene, and others involved with paleoecological and phytogeographical studies.

The manuscript was critically read, prior to going to press, by Dr. Jan Jansonius (Calgary, Canada) and Dr. Magda Konzalová (Prague, Czech Republic).

ADVERTISEMENTS

Pollen sample set (free!): I have a set of Cretaceous and Early Tertiary samples that I got from the AASP a few years ago. They are very useful for teaching palynology, but I have no further use for them. The Cretaceous set contains 30 samples ranging in age from Albian to Danian and the Tertiary set contains 20 samples of Maastrichtian to Late Eocene age. There is an accompanying booklet with convenient information. I would be glad to donate this to whoever would have a use for it. Emily Russell, erussell@nac.net, 973-984-5617

For sale: LEITZ Ortholux 1 (black body) microscope for sale. Includes camera and many accessories. Excellent condition. Asking \$5000 US. If you are interested, contact Mrs. Cecille Kaska at 925.672.7583. (This message was submitted by Bob Cushman, Ph.D., Dept. of Natural Sciences, Loma Linda University, Loma Linda, CA 92350, email: bcushman@ns.llu.edu)

For sale: Lycopodium spore tablets (batch 938934) (February 1999)
Lycopodium spore tablets can be dissolved in water or in HCl, but not in NaOH. They have been prepared in a slightly different way compared to that described by Stockmarr (1971, 1973). The tablets are thus based

mainly on sodium bicarbonate together with polyvinylpyrrolidone and polyethyleneglycol, which must be carefully washed away with water and finally with diluted HCl before further treatment. The spores are acetolysed. The spore concentration has been determined with an electronic particle counter, Coulter Counter ZB (cf. Stockmarr 1973), tube size 140 m. 100 samples of five tablets each taken from different places in the batch were prepared by dissolving the tablets in Isoton II NaCl solution in 100 ml flasks. 20 counts each of 0.5 ml were made on each sample. The tablets will be distributed in plastic bottles with 500 tablets per bottle. The price is, in Swedish currency, SEK 250 per bottle (=500 tablets), plus postage. Examples of current postage (by parcel post, airmail): Most countries in Europe: 500-6000 tabl. SEK 130, 6500-10000 tabl. SEK 140. USA, Canada: 500-6000 tabl. SEK 200, 6500-10000 tabl. SEK 235. South-America, Africa, Asia: 500-6000 tabl. SEK 205, 6500-10000 tabl. SEK 260. Australia: 500-6000 tabl. SEK 215, 6500-10000 tabl. SEK 280. Within EC, please state your VAT No. when ordering.

Please contact Björn Berglund or Thomas Persson from the Department of Geology, Quaternary Geology, Tornavägen 13, SE-223 63 LUND, Sweden, fax: +46-46-2224830, e-mail: Thomas.Persson@geol.lu.se for more information.

AGENDA

2002

March 25-27. Holocene Climate and Lakes, Springfield, USA. For further information contact dr. A. Lini, alini@zoo.uvm.edu and see <http://www.geosociety.org/sectdiv/northe/02nemtq.htm>

May 16-17. PAGES SSC meeting and Workshop on 'High Latitude Paleoenvironments', Moscow, further information contact Isabelle Larocque, laroque@pages.unibe.ch and see <http://www.pages-igbp.org>

May 26-29. Palynologists and micropalaeontologists working in all geologic eras are invited to participate in a Special Session (#22) to be held at the annual meeting of the Geological Association of Canada (GAC/MAC 2002), Saskatoon, Saskatchewan, Canada. The session is entitled "The Palynology and Micropaleontology of Boundaries".
Boundaries in time and space can leave distinct signatures in the palynological record. Diffuse or sharp, gradual or abrupt, boundaries can tell us much about the response of biotic systems to environmental change in both marine and terrestrial realms. Sponsored by the Canadian Association of Palynologists (CAP), this Special Session explores the identification and characterization of boundaries through palynology and micropaleontology.

The session is being co-convened by Alwynne Beaudoin, Provincial Museum of Alberta, Edmonton, [e-mail:abeaudoi@gpu.srv.ualberta.ca](mailto:abeaudoi@gpu.srv.ualberta.ca) and Martin J. Head, University of Cambridge, UK, e-mail: mh300@cam.ac.uk. Anyone interested in participating is invited to contact either of the convenors.

A symposium volume is planned. Please indicate whether you wish to contribute to this volume. Papers not presented at the symposium may also be considered for inclusion.

Further details about the GAC/MAC meeting, abstract submission, registration etc., may be found at the conference web-site at <http://www.usask.ca/geology/sask2000> Abstracts in digital format will be accepted from November 1, 2001 until January 15, 2002. Please monitor the conference website for additional information about the meeting.

Additional information about the Canadian Association of Palynologists can be found at the new website at <http://www.scirpus.ca/cap/cap.htm> On-going details of this Special Session will also be posted there.

June 13-16, 2002. The 2nd International Past Grasslands Research Conference (PGR 2002), St Cloud, MN, USA. Further information: Mikhail Blinnikov, mblinnikov@stcloudstate.edu or see <http://www.visitcloudmn.com/pages/visitor.html>

July 15-18. Quaternary climatic changes and environmental crises in the Mediterranean region, Madrid, Spain. Further information Ana Vadeolmillos Rodriguez, climatic.changes@uah.es or see <http://www2.uah.es/qchange2002>

August 29 - September 2, 6th European Palaeobotany - Palynology Conference, Athens, Greece. Details: Prof. D. Evangelos Velitzelos, Organizing Committee, 6th European Palaeobotany-Palynology Conference, Department of Historical Geology-Palaeontology, Faculty of Geology, University of Athens, Panepistimioupolis, Zografou, 157 84 Athens, Greece. Tel./Fax: +30-1-7274162, E-mail: velitzel@geol.uoa.gr

Aug. 31- Sept. 4, 2002 "Emerging Concepts in Organic Petrology and Organic Geochemistry". Canadian Society for Coal Science and Organic Petrology (CSCOP)- The Society for Organic Petrology (TSOP), Joint Annual Meeting, Banff, Alberta, Canada. Information: Dr. Martin Fowler, Geological Survey of Canada, 3303-33rd Street NW, Calgary, Alberta T2L 2A7 Canada; Phone: (403) 292-7038; Fax: (403) 292-7159; E-mail: Mfowler@nrcan.gc.ca; Further details: www.cscop-tsop2002.com.

1-6 September 2002, Vienna, Austria, The Third International Congress "Environmental Micropaleontology, Microbiology and Meiofaunology". Contact: Dr. Irena Motnenko, Technical Director and Treasurer, Osorno Enterprises, Inc. Suite 301, 162-2025 Corydon Avenue, Winnipeg MB R3P 0N5, Canada Phone: +1 (204) 488-1538, Fax: +1 (204) 488-1566, E-mail: congress@isemmm.org

September 2-7, Environmental Catastrophes and Recovery in the Holocene: Brunel University, 2002. The central theme of this conference is the inter-disciplinary investigation of past geological and environmental catastrophes, and their impact on our society. This conference will involve not only the Quaternary community but also biologists, archaeologists, historians and economists. See for more information: <http://www.brunel.ac.uk/depts/geo/Catastrophes/>

September 5-7, CIMP Symposium and Workshops, Lille, France. Details: Thomas Servais (thomas.servais@univ-lille1.fr) or Ludovic Stricanne (ludovic.stricanne@univ-lille1.fr), University of Lille

September 11-13, joint meetings of the American Association of Stratigraphic Palynologists (AASP), the British Micropalaeontological Society (BMS) and the North American Micropaleontology Section of SEPM (NAMS) AASP-BMS-NAMS at the University College London

The theme of this international meeting will be recent developments in applied biostratigraphy. Contributions are invited on four main themes:

- Sequence biostratigraphy
- Reservoir/development studies
- Deep-water exploration
- Outcrop analogues

There will also be an open session with emphasis on post-Palaeozoic palynology. The vision for the meeting is to encourage trans-Atlantic exchange of ideas, ultimately to seed new research initiatives. In particular, we aim to develop an integrated multidisciplinary approach in both the academic and industrial realms. There will be no taxonomic, stratigraphical or geographical restriction on contributions. Posters will also be invited on any micropalaeontological, nannopalaeontological, palynological or biostratigraphical theme. A post-meeting excursion is planned to the Isle of Wight (Cretaceous - Paleogene) led by Statoil's Iain Prince (ipri@statoil.com) and Bruce Tocher (bruce@statoil.com). The convenors are: Jamie Powell (Dinosystems): Contact Convener (ajp@dinosystems.co.uk), Chris Denison (ChevronTexaco): representing AASP (chde@chevrontexaco.com), Tom Dignes (ExxonMobil): representing NAMS (tom.w.dignes@exxonmobil.com), Alan Lord (UCL): Local Secretary (a.lord@ucl.ac.uk), Rachel Preece (ChevronTexaco): representing BMS (rprc@chevrontexaco.com), Jim Riding (British Geological Survey): Treasurer (j.riding@bgs.ac.uk)

Abstract submission format:

Sample Abstract for AASP-BMS-NAMS Meeting at University College London

Powell, A.J. (1) and Riding, J.B. (2)

(1) Dinosystems, 105 Albert Road, Richmond, Surrey TW10 6DJ, UK

(2) British Geological Survey, Keyworth, Nottingham NG12 5GG, UK

Please follow these simple rules in submitting your abstract for the upcoming AASP-BMS-NAMS meeting. Your complete abstract must fit on one page, with 3cm borders from each side, and 4cm from top and bottom of the page. Use 12-point font only, no bold or italics except for genera and species. Do not indent the first paragraph, but subsequent paragraphs should be indented. Please use the above format for title of presentation, names of authors, and affiliations.

You should submit your abstract via an Email attachment. Please use Microsoft Word, or other similar word-processing software. Any diversion from these rules, and time-consuming reformatting of your abstract may result in rejection from the technical programme.

When you submit your abstract, you must answer the questions listed; please state whether your presentation is an oral or poster presentation. If it is an oral presentation, please tell us what format your presentation will be: overhead transparencies, 35mm slides or PowerPoint from a computer. We thank you in advance for your cooperation and look forward to your abstract submission. Abstract deadline is 26th April 2002 to the address listed below.

Abstract deadline is Friday 26th April 2002
Submit abstracts in hard copy to: Dr James Powell,
Dinosystems, 105 Albert Road, Richmond, Surrey TW10
6DJ, UK
and via Email to ajp@dinosystems.co.uk

!!!see also registration form at the last pages of this newsletter!!!

2003

March 29 - April 2, 3rd International Limnogeology Congress, Tucson, Arizona. The organizing committee at the University of Arizona invites all interested participants to submit proposals for theme sessions and field trips. A first circular, describing the meeting venue and general plans for the Congress will be circulated by mailings and electronically later in 2001. Contacts: Theme session proposals should be sent to Andrew Cohen, general chair of the Congress. Dept. of Geosciences, University of Arizona, Tucson, AZ 85721. Tel: 1-520-621-4691. Fax: 1-520-621-2672. E-Mail: acohen@geo.arizona.edu. Field trip proposals should be sent to David Dettman, field trip coordinator for the Congress. E-Mail: dettman@geo.arizona.edu. For further information concerning housing and registration, please contact Noah Lopez. E-Mail: noahl@u.arizona.edu

November 2-5, Geological Society of America, Annual Meeting, Seattle, Washington, U.S.A. Details: GSA HQ, Box 9140, 3300 Penrose Place, Boulder, Colorado 80301, U.S.A. Tel: (303) 447-2020, X133, E-mail: meetings@geosociety.org

2004

July, 4-9, 2004., 11th International Palynological Congress (*IPC*) in Granada, Spain. Website <http://www.ugr.es/local/bioveg>, or contact palacio@pcgr.org.



CALL FOR PAPERS
JOINT MEETING OF AASP-BMS-NAMS
11TH-13TH SEPTEMBER 2002
UNIVERSITY COLLEGE LONDON

**American Association of Stratigraphic Palynologists (AASP),
the British Micropalaeontological Society (BMS) and
the North American Micropaleontology Section of SEP (NAMS)
are holding a joint meeting in September 2002 at
University College London**

The theme of this international meeting will be recent developments in applied biostratigraphy. Contributions are invited on four main themes:

Sequence biostratigraphy	Reservoir/development studies
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A post-meeting excursion is planned to the Isle of Wight (Cretaceous – Paleogene) led by Statoil's Iain Prince (ipri@statoil.com) and Bruce Tocher (bruce@statoil.com).

The conveners are:

Jamie Powell (Dinosystems): Contact Convener (ajp@dinosystems.co.uk)

Chris Denison (ChevronTexaco): representing AASP (chde@chevrontexaco.com)

Tom Dignes (ExxonMobil): representing NAMS (tom.w.dignes@exxonmobil.com)

Alan Lord (UCL): Local Secretary (a.lord@ucl.ac.uk)

Rachel Preece (ChevronTexaco): representing BMS (rprc@chevrontexaco.com)

Jim Riding (British Geological Survey): Treasurer (j.riding@bgs.ac.uk)

ABSTRACT SUBMISSION FORMAT

Sample Abstract for AASP-BMS-NAMS Meeting at University College London

Powell, A.J. (1) and Riding, J.B. (2)

(1) Dinosystems, 105 Albert Road, Richmond, Surrey TW10 6DJ, UK

(2) British Geological Survey, Keyworth, Nottingham NG12 5GG, UK

Please follow these simple rules in submitting your abstract for the upcoming AASP-BMS-NAMS meeting. Your complete abstract must fit on one page, with 3cm borders from each side, and 4cm from top and bottom of the page. Use 12-point font only, no bold or italics except for genera and species. Do not indent the first paragraph, but subsequent paragraphs should be indented. Please use the above format for title of presentation, names of authors, and affiliations.

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When you submit your abstract, you must answer the questions listed; please state whether your presentation is an oral or poster presentation. If it is an oral presentation, please tell us what format your presentation will be: overhead transparencies, 35mm slides or PowerPoint from a computer. We thank you in advance for your cooperation and look forward to your abstract submission. Abstract deadline is 26th April 2002 to the address listed below.

Name of person submitting abstract:

Address:

Telephone:

Email:

(please tick)

Oral Presentation: If yes: Overhead 35mm slides PowerPoint

Poster Presentation: (eligible for the AASP Best Poster Award)

Student Presentation: (eligible for the AASP L.R. Wilson Student Paper Award)

Session (please tick):

Sequence biostratigraphy: _____

Reservoir/development studies: _____

Deep-water exploration: _____

Outcrop analogues: _____

Post-Palaeozoic palynology: _____

Abstract deadline is Friday 26th April 2002

Submit abstracts in hard copy to:

Dr James Powell, Dinosystems, 105 Albert Road, Richmond, Surrey TW10 6DJ, UK

and via Email to ajp@dinosystems.co.uk

REGISTRATION FORM
JOINT MEETING OF AASP_BMS_NAMS
11TH_13TH SEPTEMBER 2002
UNIVERSITY COLLEGE LONDON

Thank you for registering to attend the AASP_BMS_NAMS Meeting at University College London, UK. Please fill in the appropriate blanks below, and submit your form to the address below. Please do not submit your details by Email or Fax. The conveners all hope you enjoy contributing to the meeting, and take advantage of the attractions that London has to offer. All costs are in GB£. Registration deadline is Friday 26th July 2002.

REGISTRATION

AASP, BMS and NAMS Members: £90 (onsite: £110)

Student Members: £30

Non_members: £150 (onsite: £170)

AASP Business Luncheon: |£20

(Registration includes Registration Packet, Abstract and Program Volume, coffees, teas and lunches, and Icebreaker. Registration does not include transportation, accommodation, and fieldtrips).

I am a member of:

AASP: _____

BMS: _____

NAMS: _____

I am a student: _____

Counter signed by supervisor: _____

AASP BUSINESS LUNCHEON

Yes, I wish to attend the AASP Business Luncheon on 13th September 2002: _____

ACCOMMODATION

Limited single occupancy bed and breakfast accommodation will be available at Ramsay Hall of Residence (student dormitory) @ £23.75 per night for the nights of 10th_12th September and will be allocated on a first_come_first_served basis.

Yes, I wish to reserve a room in Ramsay Hall for 3 nights: _____

SOCIAL EVENT

The conveners are planning a social event on London's South Bank on Thursday 12th September. This will include a flight on the London Eye (giant ferris wheel) and a reception at the Royal Festival Hall. Tickets will be allocated on a first_come_first_served basis. We hope the costs of this event will be covered through sponsorship.

Yes, I wish to attend the social event on the South Bank: _____

FIELDTRIP

Fieldtrip: Cretaceous_Paleogene of Isle of Wight led by Iain Prince and Bruce Tocher.
The fieldtrip itinerary and costs will be announced at a later date. The costs will include a guidebook, over_night accommodation, transportation, and lunches. Places will be allocated on a first_come_first_served basis.

Yes, I wish to attend the fieldtrip: _____

PAYMENT SUMMARY

Registration: £ _____

AASP Business Luncheon: £ _____

Accommodation: £ _____

Additional Icebreaker tickets @ £8.50: £ _____

Additional AASP Business Luncheon tickets @ £20: £ _____

Additional Abstracts Volume @ £7: £ _____

Additional London Eye tickets @ £9.95: £ _____

TOTAL: £ _____

PERSONAL INFORMATION

Name: _____

Address: _____

Tel: _____ Fax: _____

Email: _____

PAYMENT

Payment in check (in GB£) or credit card:

Credit Card Information: Visa: _____ MasterCard: _____

Credit Card Number: _____ Expiry date: _____

Signature: _____

Send completed registration forms by 26th July 2002 to:

Dr James Riding, British Geological Survey, Keyworth, Nottingham NG12 5GG, UK

(For information only contact jbr@bgs.ac.uk)