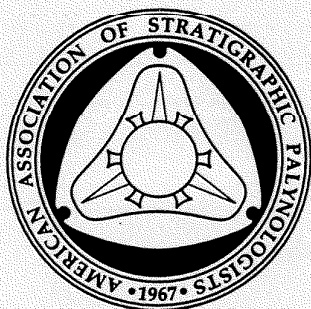


July, 1996

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

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A.A.S.P. NEWSLETTER

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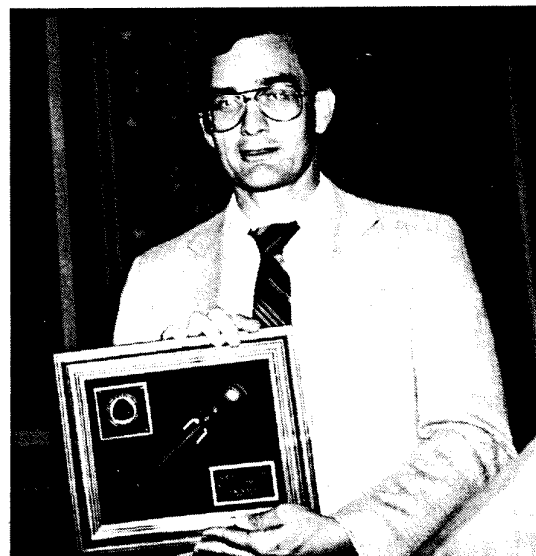
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THE AASP NEWSLETTER is published four times annually. Members are ENCOURAGED to submit articles, "letters to the Editor," technical notes, meeting reports, information about "members in the news," and information about job openings in the industry. Every effort will be made to publish all information received from our membership.

The deadline for the next NEWSLETTER, the last of 1996, is **September 16**. All information should be sent on computer disk (MS Word for the Mac is best, but anything will do) or by e-mail, if possible, or if not—send hard copy. Always include a duplicate typescript of all electronic copy sent so I can check formatting, diacritics, etc. If possible, please illustrate your contribution with art, line drawings, eye-catching logos, black & white photos, color photos, etc. We look forward to contributions from our membership.



Newly installed AASP President, Gordon Wood, holding the President's gavel at IX IPC in Houston last month (Photo: MJH)

PRESIDENTIAL ADDRESS

TO paraphrase Allan Kay of Apple Computer "I am a firm believer that the best way to predict the future is to attempt to invent it." On rare occasion serendipity plays a role, but this is often an embellishment of a strategy that allows chance to be a major component.

Palynology demands a high level of ideas and approaches, innovation and technical standards. It has been the ability of this discipline to be creative and this aspect will pull young, bright, variously talented individuals into the field.

In the last few years I have been inspired by the diversity of applied palynological studies. Particularly impressive is the interdisciplinary collaboration exhibited in elucidating complex natural systems. At times it appears that a variety of disciplines are converging on one another; but, this is the inherent dichotomy of the field. Palynologists are a hybrid of backgrounds; geology, biology, zoology, archaeology, to name a few. The broader the technical background the better chance of innovation.

On the threshold of the 21st century change is the watch-word. Technology has been integrated into the business strategy and this is being felt in all aspects of the natural sciences. In industry, technology has gone from an asset to be exploited to a cost to be managed. This has been quite evident in the petroleum industry for the last 10 years—and now is impacting with full force in other sectors.

Are these changes short term perturbations, or long term trends which can be recognized? Change is disconcerting for many, cataclysmic for the indolent but fertile ground for the resourceful. To perpetuate the field of palynology during these disquieting times we need to identify the major trends and plan accordingly. What throttles creative thinking is the recognition of trends that affect the global, political, and social reordering evident in the last several years. These include:

1. Accelerating growth of the human population
2. Risks associated with major geological hazards
3. Demand for energy, minerals, soil, food or water resources
4. The environmental impact of human activity

Does the field of palynology offer any value when preparing to approach these trends? It most definitely does! The recent International Palynological Congress displayed a diversity of topical and innovative palynological applications. The variegated subject matter reflected by the chapter titles in AASP's "Palynology: Principles and Applications" offers further testimony to this point. Palynology has, perhaps somewhat stealthily, been assailing these trends. The discipline is much more than the initial biostratigraphically oriented organization of past years. Although paleopalynology continues to command a major role in energy or environmental impact sectors it is now closely entrenched with several other disciplines. Yes, industry is downsizing their paleontological staffs and outsourcing. This is evident in the changes of business strategy through the globe and includes all technologies. The diversity, integration, and innovation exhibited by palynologists the last few years has been in response to these trends.

This is a rapidly changing, extremely competitive world—networked electronically. Palynology exhibits a resiliency not evident in other aspects of the sciences. I realize I am "speaking to the choir" here but the exhibition of global cooperation in the field indicates we are cognizant of the broader implications palynology. We need to market ourselves smartly, particularly to individuals focused on bottom line cost and no scientific background.

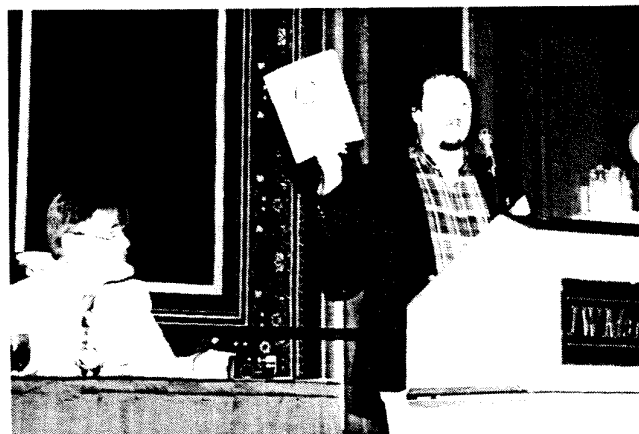
Many parameters are beyond our control but we can address the trends. It is an evolving order, with many challenges. The risks are high but rewards are commensurate. I am extremely pleased to see the membership actively, pugnaciously, assailing these new horizons. The demographics and focus of palynology may be changing somewhat, but a robust scientific discipline requires change for survival. The more innovative, the stronger we become—and that is our charge into the 21st Century.

Gordon D. Wood, AASP President
Amoco Exploration & Production Technology Group
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AASP EXECUTIVE MEETING— EDITED MINUTES

1. Secretary-Treasurer's Report. Nine new individual members have joined AASP since the mid-year meeting. These are Robert Booth, Rosa G. Bruce, Michael B. Elliot, Otfried Hankel, Cathryn A. Hoyt., Richard H. Levy, Barbara Leyden, Skip Palenik and Jorg Pross. The total membership is now 810.



Jan Jansonius looks on as Dave Goodman, AASP Editor-in-Chief, holds *Palynology* vol. 20 aloft during the AASP Luncheon (Photo: M. Miller)

The AASP coffers now stand at over \$69,000. However, this includes funds associated with IPC credit card payments and money owed to the AASP Foundation for publication charges.

2. Managing Editor and AASP Foundation Report. The AASP Editorial Board consists of Dave Goodman (Managing Editor), Martin Head (Newsletter Editor and WebMaster), and Reed Wicander (Book Review Editor). Martin will step down from his position as Newsletter Editor (after this issue) but remain as WebMaster. The *Palynology* Editorial Board consists of Owen Davis, Farley Fleming, Javier Helenes, Francisca Oboh, Joyce Lucas-Clark, Paul Strother, Bob van Pelt, and Pierre Zippi.

Congratulations are bestowed upon the editorial staff and particularly the Herculean efforts of Dave Goodman and Bob Clarke in getting *Palynology* vol. 20, *AASP Contributions Series* No. 32, and the three volume *Palynology: Principles and Applications* all published in time for the International Palynological Congress. Special thanks also to Bob and Carol Clarke for driving a U-Haul of publications from Dallas to Houston and then sitting for nine hours a day selling books, t-shirts, mugs, postcards, and a few towels, chairs, and potted plants owned by the hotel.

3. Meeting(s). The Board congratulated Vaughn Bryant and John Wrenn for their hard work associated with the 9th IPC. Many others assisted in specific aspects of the meeting but these two individuals performed the lions share of work. During the whole process, and a saving grace in the three weeks leading up to the Congress, Becky Jobling (Texas A&M) was the focal point for organizational needs. Her energy was contagious. The successful meeting is testimony to her remarkable abilities.

The next three AASP meetings will be convened in Woods Hole (Massachusetts), Ensenada (Mexico) and Savannah (Georgia), respectively.

4. CENEX (Louisiana State University) Fundraising. The Board voted to retain a professional to raise the money necessary to complete funding of CENEX. The cost of the fundraiser will be paid from the interest earned on the amount already collected by AASP. These funds are not being taken from AASP but from interest in a separate account that, by contract with LSU, cannot yet be added to the principal. The Board agreed to amend the existing contract for this purpose and send the request to the LSU Foundation for discussion and approval. Ms. Emily DiStephano, a professional fundraiser who has worked with the LSU Foundation in the past, was asked to attend this meeting to answer questions about her fundraising abilities and strategy with respect to AASP. Subsequent to this discussion the Board agreed that Ms.

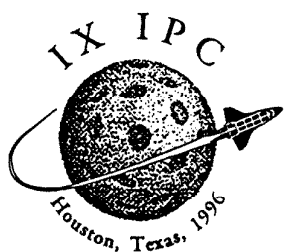
DiStephano be hired to raise funds on behalf of CENEX.

5. The 1996 AASP Student Scholarship Awards. Ms. Sophie Armande Warny (Univ. Catholique de Louvain, Belgium) and Mr. Mario van der Hoeven (Univ. of Utrecht, The Netherlands) were both given the AASP Student Scholarship Award. Ms. Warny will be working with Prof. Jean-Pierre Suc on "Neogene marine palynology (dinocysts and pollen) on the Atlantic Coast of Morocco and Spain." Mr. van der Hoeven will be studying "Organic and calcareous dinoflagellate cysts across the Priabonian impact horizon at Massignano, central Italy," with Dr. Henk Brinkhuis.

Merrell A. Miller is stepping down as the Chair of the Awards Committee and is being replaced by Owen Davis. Len E. Eames has agreed to serve on the Awards Committee.

6. Geological Society of America (GSA) Affiliation. The AASP Membership has voted to become an Affiliate Society of the GSA. Reed Wicander will contact the GSA Board and formally request that AASP be granted member status.

Gordon Wood, AASP President



IX ICP—HOUSTON, TEXAS, USA
23–28 JUNE 1996

The Ninth International Palynological Congress was an unqualified success. After our Newsletter Editor asked me in midweek to write a brief report, I polled many people, and their answers reflected my own feelings: it was a fine, successful, GREAT meeting. A total of 400 registrants came from all over the world—Russia, China, Japan, Australia and New Zealand, South America, Africa, India, the Middle East, and just about all European nations. Of course, there were many North Americans. New was the participation of members of the International Organization of Aerobiologists, which recently joined the IFPS. An encouraging sign was the presence of a solid group of students, from various parts of the world. And, personally, I was happy to find many old friends, near or in retirement, who maintain contact with palynology and its practitioners.

Of the Organizing Committee, Vaughn Bryant and John Wrenn (Co-Chairmen), Bob Clarke (Treasurer and Proceedings Editor) and David Pocknall (Local Coordinator) took hands-on care of the immediate local organization, as they were fairly close to Houston. The other members: Dave Goodman (Proceedings Co-Editor), Sarah Damassa and Doug Nichols were not less busy, and contributed significantly to the smooth management of the meeting. Numerous friends and relations helped out in the stressful last months in which everything had to come together. Their names are given in the Program and Abstracts Volume. As many registrants waited till almost the last minute before committing themselves to taking part, the editing of the Abstract was still going on one week before the meeting began, but Bob Clarke pulled that one out of the fire.

For four years, the main stimulus for the organizing committee and the main contact with numerous prospective registrants from all over



Vaughn Bryant, Co-Chairman of the IX ICP, at the AASP Luncheon
(Photo: M. Miller)



John Wrenn, Co-Chairman of the IX ICP, at the AASP Luncheon
(Photo: MJH)

the world had been Vaughn Bryant—but he was conspicuously absent during the meeting. Medical complications in his family, and a nasty cut caused by the explosion of a glass cooking pot, made it necessary for him to stay away. Fortunately, Vaughn and his wife Carol managed to attend the AASP Business Luncheon on Wednesday, and so could experience first-hand the warm feeling pervading the meeting. (This is not a pun aimed at the hot weather, the buildings were cool enough).

The last several ICPs had been organized in academic/campus settings: Aix-en-Provence, Brisbane, Calgary, Cambridge. This meeting was held in one of Houston's finest hotels, which, as Reed Wicander put it, helped tremendously in staying fresh and alert. Indeed, it allowed all delegates to benefit optimally from the information presented. Moreover, with the great majority of the registrants staying at the J.W. Marriott, there was ample opportunity to meet and mingle at the free breakfasts and coffee-breaks (bagels and breads, fruits, juices and coffee/tea) that were provided at three or four nodes between the conference halls; and, at the end of the day in the bar and lobbies.

Another active meeting point was the registration room, which doubled as AASP Foundation dispensary. Here, special prices on previous AASP publications proved irresistible to many delegates, many of whom had been unaware of the terrific value of an AASP membership. Moreover, Bob Clarke had managed to get *Palynology* vol. 20, and the three-volume book *Palynology: principles and applications*, into print in time for this occasion. The book proved to be one



Carol and Bob Clarke in action as Jim Canright inspects one of AASP's best-selling publications (Photo: MJH)

of the focal points of this meeting—the fact that some 200 copies were sold in five days attests to its favorable reception. Although a good number of the attractive T-shirts and coffee mugs were sold, there are a few left for the collector. A few commercial displays included one on automated focussed microwave processing.

The AASP, as sponsoring society, played a role in the organization, and many details followed the pattern of AASP Annual Meetings. The Business Luncheon was open to any non-member curious to see how AASP conducts its business. The meal was a tasty and festive event, of which the highlight was the awarding of two Medals for Scientific Excellence, to respectively Hans Gocht and Graham Williams [see citations below—Ed.].

Of course, as the IPC is a function of the International Federation of Palynological Societies, the outgoing and incoming Presidents, Jim Canright and Owen Davis, respectively opened the congress on Sunday, and closed it on the following Friday night. The next IPC will be held in 2000 in Nanjing, China; no competing invitations had been received by the advertised deadline. Liu Gengwu, representing the Nanjing Organizing Committee, assured the Plenary Session that the meeting would be well organized and affordable, by making use of the new Convention Center, and nearby mid-range hotels and university dormitories. A video of Nanjing and surrounding regions showed how big and varied a country China is.

The Fungal Workshop was canceled (for insufficient interest), but the Fourth Workshop on Neogene–Quaternary Dinocysts (organized by Martin Head and John Wrenn) did take place on Sunday and was very well attended. Departing from previous formats, this workshop featured informal photoslide presentations alternating with microscope



Owen Davis, new IFPS President, receives the IFPS plaque from Jim Canright during the closing plenary session (Photo: MJH)

sessions throughout the day.

On most days there were concurrent sessions in five rooms, but since some were definitely for Quaternary–Recent workers, and others for true paleopalynologists, there was not much conflict or overlap. The large room for posters was easily accessible, and allowed good opportunity for demonstration and discussion.

The Banquet on Thursday night—a sumptuous Mexican buffet, no-host bar, and a Mexican band serenading each table—was a happy occasion evidently enjoyed by all. The official duties of the evening were dispatched efficiently and quickly, leaving much time for informal visiting and merrymaking. The other official extracurricular event was a trip to the Houston Space Center; busses ran on three separate days, making each trip a manageable exercise. The displays were impressive, and the wetlands on the grounds displayed a fine population of white cattle egrets and yellow-crowned night herons.

The members of the Organizing Committee can be proud and pleased that everything came off so well; they deserve our thanks and congratulations. Still, their work will not be done until the Proceedings Volume is published.

Jan Jansonius, AASP Past President

SNAPSHOTS OF THE 9TH IPC—HOUSTON



Top: Graeme Wilson and Don Benson. Middle: Jane Lewis, Chris Denison, and Richard Hallett. Bottom: Martin Farley and David Wall (Photos: MJH)



AASP MEDAL OF SCIENTIFIC EXCELLENCE AWARDS

The AASP Medal of Scientific Excellence has been awarded this year to Hans Gocht and Graham L. Williams. Their citations, read by Jan Jansonius at the AASP Annual Luncheon on 26 June 1996, are given below. These citations will also appear, along with literature references and responses, in *Palynology*, vol. 21.

Dedication to Hans Gocht

Hans Gocht has been at the forefront of fossil dinoflagellate studies since the 1950s. For four and a half decades his commitment to understanding dinoflagellates, as well as to their description and application, has been second to none; his more than 30 publications remain standard references.

In his first paper of 1952 he described Oligocene "hystrichospheres" (now known to be chorate dinoflagellate cysts) from Germany; in 1955 he described two new wetzeliellid genera, *Rhombodinium* and *Dracodinium*. Many authors at that time gave anecdotal descriptions and unclear figures. Hans' descriptions were to the point, and his clear illustrations accurately showed critical detail and subtle variations, particularly of the archeopyle shape, that are of incalculable importance in present-day re-evaluations of the wetzeliellideans. In the late 1950s, Hans broadened his stratigraphic scope and produced two well-illustrated and detailed papers on the Neocomian.

In these early papers Hans developed his characteristic "trade-marks." The first of these is his ability to produce plates of aesthetically pleasing yet marvelously informative drawings, such as the illustrations of 27 specimens of *Chiropteridium* in his 1960 paper—Hans recognized early that a taxonomic concept must be clearly communicated, and the best way to do that is by accurate description and illustration of a variety of specimens. His second trait is his ability to recognize, understand and describe intriguing details of morphology, such as the flagellar marks in specimens of *Wetzeliella* (1967).

In the 1960s, Hans extended his interest into the Jurassic. In his 1964 description of a Lower/Middle Jurassic boundary assemblage he was the first to draw the circular archeopyle of *Nannoceratopsis*. Although not then recognizing its significance, he rendered it accu-



On behalf of Hans Gocht, his student Jörg Pross (right) accepts the award from Jan Jansonius (Photo: M. Miller)

ately without the aid of SEM observations.

In an innovative study of the morphological variation in specimens of *Thalassiphora pelagica*, Hans picked manually, in the way of micropaleontologists, dozens of specimens of that species, and suggested that their variation might reflect ontogenetic stages in cyst development. Although this phenomenon is still not properly understood, studies of living cysts seem to indicate that Hans was on the right track: that in some species developmental stages may be preserved as morphologic variation within a population. In any case, he was the first to recognize the phenomenon and set us to thinking about it.

In 1969 Hans published the first attempt at solving the tabulation details of the Paleogene *Cordosphaeridium*, the interpretation of which is not simply an extrapolation of plate-centered processes, but involves a more complex relationship between processes and plates. Dinoflagellate workers continue to grapple with this problem, but Hans' explanation so far is the best we have.

The early studies of dinoflagellates, by Ehrenberg, White, Mantell and others, and culminating in those of Otto Wetzel, Eisenack, and Deflandre, were carried out on flakes of flint. In the 1950s, chemical maceration methods had become standard, but this did not prevent Hans from becoming curious about the nature of fossil dinoflagellates in flint. In a lesser known 1970 paper he reported experiments on partially dissolving flint in hydrofluoric acid, by which he found that the cysts were preserved in two ways—as original organic substance, and as inorganic pseudomorphs.

In a 1970 monograph Hans analyzed Bathonian assemblages quantitatively, in order to gain knowledge of how they vary with changing environments; the plates contain some of the most exquisite photomicrographs published—beautiful to behold (to dinoflagellate workers, anyway) and full of clearly presented visual information. In this paper Hans became one of the first dinoflagellate workers to utilize the SEM, a tool that he continued to use most effectively. However, he never lost sight of the value of the light microscope, and in later papers would provide illustrations using both techniques.

In a milestone study of 1979, Hans elucidated the true nature of the strange tabulation of *Cribroperidium* and related forms: he realized that what had been thought of as extra "parasutures," actually were reflections of growth bands on the plates of the theca. Moreover, from their distribution, he could tell the overlap pattern of these plates. These observations of Hans Gocht would later provide the basis for a young German palynologist, Raimond Below, to develop his influential ideas on plate overlap patterns ("tegulation") and dinoflagellate evolution. In 1981, Hans demonstrated, on the basis of details of surface relief and parasutures, overlap patterns in the Jurassic cyst *Hystrihogonyaulax* (now *Rhynchodiniopsis*) *cladophora*, which does not possess growth bands.

In 1983 and 1987, Hans published speculations on the duality of morphological features of dinoflagellate cysts: some are reflections of features of the theca (thecamorphic characters) and some appear unrelated to thecal features (cystomorphic characters). The significance of this duality is still unresolved, but is yet another example of Hans' productive mind providing food for thought in dinoflagellate studies. In this period of his career, Hans had fruitful collaboration with the Tübingen biologist Walter Netzel (on the unusual wall structure of *Palaeoperidium pyrophorum*) and with his student and later colleague Wolfgang Wille (e.g., the description of the first known chain-forming dinoflagellate *Dinaurelia pyrros*). He trained several other palynologists, amongst others Suzanne Feist-Burkhardt and Gabi Durr, who now are building their own reputations in dinoflagellate research.

In more recent years Hans has been the inspiration for the rebirth of the "Eisenack catalog," which took the form of a New Series co-authored with Lew Stover, Graham Williams and Rob Fensome. The just completed fourth volume in this series is the last in which Hans will

be involved—since 31 December 1995 he has joined the ranks of the retired. Because of the quirks of the German academic system, Hans never gained a professorial position; indeed, he achieved such magnificent palynological research in parallel to carrying out his “primary” duties as department librarian. For this and his modest, even self-effacing demeanor, his scientific achievements have been underestimated and little appreciated outside of palynology. Hans has always been a patient researcher, and one who is kind, courteous and ever ready to warmly welcome colleagues and students alike. A superb scientist, he tested his ideas to the limit of what the evidence from light and electron microscopy would allow. Although cautious to extend and generalize his observations beyond his own material, the significance of his important ideas were picked up by others who built on them, and who were truly “standing on the shoulders of a giant.” He has maintained the tradition of significant research in palynology in Tübingen that was originally established by his mentor Alfred Eisenack. At the end of his career it is a fitting tribute, and a vote of gratitude of his scientific peers, to recognize his exceptional contributions to palynology by awarding him the AASP Medal of Scientific Excellence.

[The medal was accepted by Gocht’s student Jörg Pross who read a brief statement by Gocht]

Dedication to **Graham Lee Williams**

Graham Williams began his study of fossil dinoflagellates as a postgraduate student with Charles Downie in 1959. His 1963 doctoral thesis dealt with Paleogene dinoflagellates of the London Clay. This was one of the first detailed studies of Paleogene fossil dinoflagellates and in its published form, as part of the now famous “DDSW” (Davey, Downie, Sarjeant and Williams, 1966) monograph, had great influence—both for the descriptions and indicated ranges of many important new species, but also for the exemplary style and format of the descriptions.

After his graduation, Graham found a job as palynologist with Pan American Petroleum (now Amoco Petroleum Company). His first project was to set up a biostratigraphic framework for nonmarine Tertiary sediments of Washington and Oregon, obviously based on pollen and spores. Next, he was assigned to study the biostratigraphy of the East Coast offshore of Canada where Amoco was drilling. When, in 1971, the Geological Survey of Canada opened an eastern office, the Atlantic Geoscience Centre (now Geological Survey of Canada, Atlantic) in Dartmouth, Nova Scotia, it was natural that Graham was also become its resident Mesozoic–Tertiary palynostratigrapher.

During the early years at AGC, Graham examined a large number of wells and gained an increasing knowledge of dinoflagellate biostratigraphy. This phase of his career culminated in a GSC Paper entitled “Palynological zonation and correlation of 67 wells, eastern Canada” (Barss et al., 1979), of which Graham was the most significant contributor, having run 44 of the 67 wells in about eight years. Graham was also the moving force behind several papers outlining the dinoflagellate zonation of offshore eastern Canada (Williams, 1975; Williams and Bujak, 1977; Bujak and Williams, 1977, 1978).

During that same decade, in spite of this exhausting pace, Graham started his collaboration with Judi Lentin in producing the “Lentin and Williams” indexes of fossil dinoflagellates (Lentin and Williams, 1973, 1977, 1981, 1985, 1989, 1993). This index is a primary reason why fossil dinoflagellate taxonomy is in an organized state, unlike the taxonomy of most other microfossil groups; it has set the standard for



*Graham Williams (right) accepts the medal from Jan Jansonius
(Photo: MJH)*

other indexes. Graham is now involved in a seventh edition of this classic. Still during this period, Graham used his expertise to contribute chapters on dinoflagellates and related microfossils to two multi-authored textbooks (Williams, 1977, 1978), and as well was the driving force behind two editions of a glossary on dinoflagellate and acritarch terminology (Williams et al., 1972, 1978), of which a third edition is nearly ready for publication. And, finally, he co-authored a major monograph on fossil peridinioid dinoflagellates (Lentin and Williams, 1980).

In 1978 Graham became Head of the Eastern Petroleum Geology Subdivision at the AGC, but he continued to publish. Apart from two editions of the Lentin and Williams Index, he completed another contribution on the Paleogene of southern England (Bujak et al., 1979) and three important conceptual papers, respectively on dinoflagellate evolution (Bujak and Williams, 1981), dinoflagellate diversity through time (Bujak and Williams, 1979) and paleoprovincialism (Lentin and Williams, 1980).

In 1985, Graham realized that management was not his true vocation, and he stepped back into the trenches as a research scientist. His first task was as co-editor of a major volume on the continental margin of eastern Canada in the Decade of North American Geology (DNAG) series (Keen and Williams, 1990), which included a definitive overview of the biostratigraphy (Williams et al., 1990).

Indeed, Graham’s contributions to areas other than palynology have become increasingly noticeable. He was a leading founder of the Atlantic Geoscience Society, to which he made a number of significant contributions, such as assisting in the planning and production of a series of videos on geology for use in schools. He further is involved in the EdGeo instructional workshops for teachers in Nova Scotia, as well as in the SITS (Scientists in the Schools) program, and regularly gives presentations on geology to school children. Graham was senior editor of the “Lexicon of Canadian Stratigraphy. Volume VI. Atlantic Region” (Williams et al., 1985), and currently is deputy editor of Canada’s most prestigious geoscience journal, the Canadian Journal of Earth Sciences.

However, Graham’s most important expertise is in dinoflagellate research, where his vast energy and acute perceptiveness have caused him to acquire an encyclopedic knowledge of fossil dinoflagellates, which he is readily willing to share without reserve. His reviews of manuscripts are invariably helpful and instructive, because he is a good teacher. For two recent courses (given in 1994, mainly with H. Brinkhuis and Sarah Damassa, at Utrecht and Houston), Graham

developed a system of sheets detailing published justification for ranges—a further innovative tool demonstrating his great respect for, and attention to, detail.

Since stepping down from management, Graham has continued his research on dinoflagellates. This resulted in a benchmark publication on dinoflagellate biostratigraphy (Williams and Bujak, 1985); a catalogue of fossil dinoflagellate genera with his great friend Lew Stover (Stover and Williams, 1987); contributions to the New Series of the prestigious "Eisenack Catalog" (Fensome et al., 1991, 1993, 1995, in press), not to mention some smaller but still important papers. He further played a vital role in formulating the first detailed comprehensive phylogenetic classification of dinoflagellates (Fensome et al., 1993a), and has been integrally involved in contributing ideas to a series of papers on dinoflagellate evolutionary patterns (Fensome et al., in press; MacRae et al., in press; Damassa and Williams, in press). Perhaps most significant for the AASP was Graham's idea to produce a multi-authored textbook on palynology, that evolved into "Palynology: principles and applications" (Jansonius and McGregor, 1996). Graham, Rob Fensome, and Bruce Tocher together set out the first scheme for this work while driving home from Dino IV, but it was Graham's initial concept that took off under the impetus of his drive and energy. Typically, in the chapter in this book for which he was responsible (Stover et al., 1996), Graham made himself the last author, although he contributed by far the greater share of the work.

Graham has always considered himself to be a member of the larger paleontological and geological community, but in cooperative projects is modest and self-effacing—even when he provides the main stimulus toward progress. Throughout his career he has shown integrity and excellent judgement, and has contributed enormously in nurturing what was an emerging discipline, helping to shepherd it to a maturity where it has become an essential component of frontier exploration worldwide. Characteristically, the larger part of Graham's monumental output is in joint authorship. This account gives only the highlights of his career; the details would fill many more pages. With prodigious energy and phenomenal power of concentration, he will work long days to finish his commitments, while always keeping a positive attitude and cheerful disposition. He cares deeply not only about science as a field of endeavor, but about his colleagues as scientists and as people. He has achieved excellence in every sense of the word, and his nomination for the AASP Medal of Scientific Excellence is surprising only in that it has been so long in the coming.



AASP STUDENT SCHOLARSHIP RECIPIENTS FOR 1996

THE AASP Awards Committee congratulates **Sophie Armande Warny** and **Mario van der Hoeven**, winners of the 1996 AASP Student Scholarships. These awards are based on the qualifications of the student, originality and imagination evident in the proposed project, and the likelihood of significant contribution in the field of palynology. Both awardees received \$1000 (US). Thirty-two students applied for the scholarship in 1996. They were from universities in 13 countries with thesis topics including biostratigraphy, palynofacies, paleoenvironmental analysis, forensic science, archeology, and climatology. This scholarship is not restricted to AASP members. The 1997 AASP Student Scholarship will be announced in the January 1997 AASP Newsletter.

Sophie Armande Warny



Sophie Warny is pursuing a Doctoral degree in geology at the Université Catholique de Louvain, Belgium, under the direction of Dr. Jean-Pierre Suc. Sophie completed her bachelor's degree in geology from the Université Catholique de Louvain in 1992. Her master's degree was in Oceanology from the Université of Liège. Sophie was a Research Associate at CENEX in 1995. She has been an assistant lecturer at the Department of Geology for the past three years.

Ms Warny's thesis topic, and winning proposal, is entitled "Neogene marine palynology (dinocysts and pollen) on the Atlantic Coast of Morocco and Spain." Sophie's project involves the examination of the communication between the Mediterranean Sea and Atlantic Ocean during the Messinian salinity crisis. The Messinian crisis interrupted a relatively stable phase where marine exchange was maintained through the Betic and Rifian straits. Marine exchange was reinitiated through the Gibraltar Strait. Cores at the entrance of the paleo-straits will be examined to establish the pollen and dinocyst spectra to combine with micropaleontology, geochemistry and paleomagnetism for a multidisciplinary, high-resolution chronology for the cores. Her contribution will be characterization of the changes in marine paleoenvironments (dinocysts) and climate (pollen). These data will aid in the understanding of sequence stratigraphic signatures and correlations between the two straits and between the Atlantic and Mediterranean.

Sophie intends use her scholarship award toward the purchase a microscope for her research. She expresses her appreciation to Drs. John Wrenn, CENEX, and Jean-Pierre Suc, Université Claude Bernard, for their encouragement.

Mario Van Der Hoeven



Mario Van Der Hoeven is working on his Master's degree (a Dutch *doctorandus*-degree) at the Laboratory of Palaeobotany and Palynol-

ogy, Utrecht University and Department of Micropalaeontology, Bremen University under the guidance of Dr. Henk Brinkhuis. He has participated in the International Exchange Program (ERASMUS) involving field work in central Italy, and studying foraminiferal assemblage changes in the P21–P22 foram zones.

His winning proposal is entitled "Organic and calcareous dinoflagellate cysts across the early Priabonian Impact Horizon at Massignano, Central Italy." Strong evidence for a major early Late Eocene impact has in recent years been found in a level of the Massignano section (near Ancona, central Italy). The Massignano section consists of pelagic marls and marly limestones interbedded with several volcanic ash-layers and is currently the global stratotype for the Eocene/Oligocene boundary. In a combined study at Utrecht and Bremen universities, Mario is analyzing the Massignano palynological record, emphasizing organic walled dinocysts and calcareous dinocysts (with Prof. Willem at Bremen University) in order to portray both their qualitative and quantitative distribution patterns, and to investigate whether and how possible impact-related changes are linked paleoecologically. By analyzing coeval intervals in the differing marginal marine settings of nearby Priabona (platform facies, NE Italy) and Possagno (delta-front facies, NE Italy), he hopes to identify the responses of these two microfossil groups along the onshore–offshore transect. This palynological study is part of an ongoing multidisciplinary study of the Massignano section (MassiPop Project).

Merrell A. Miller, Chair of AASP Awards Committee
Amoco, Houston.



AASP MEMBERS' E-MAIL DIRECTORY—NEW ADDITIONS AND CHANGES

BELOW are listed new, changed, and corrected email addresses of AASP members, supplementing the directory published as an Appendix in the April issue of the Newsletter. A complete and up-to-date list of AASP members' email addresses can be found in the World Palynology E-mail and WWW Directory which resides on the AASP Web site. The Web version of this list is usually updated daily.

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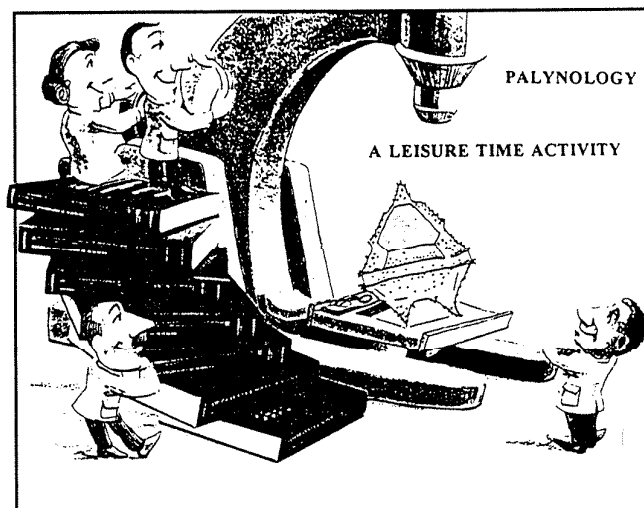
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PALYNOLOGY—A LEISURE TIME ACTIVITY

AFTER a hard day at the office, nothing relaxes me more than taking my shoes off, sitting down in a comfortable chair with a tall cool drink and turning on the microscope. There are many channels to choose from: when I feel aggressive I really enjoy looking at Miocene from offshore China (non-marine, naturally). If I'm really tired and stressed out, and just want to blob, nothing is more enjoyable than Late Cretaceous dinoflagellates from the East Coast Offshore of Canada, or perhaps the Jurassic of Western Siberia. Then there are times when a bit of nostalgia is called for, so I slip in a slide from my old PhD material—Carboniferous spores, ah! they don't make 'em like that any more!

What better way to blob out? Television is a drag, jogging is really hard work, and cleaning the basement is not an option. Why not sit down to a quiet evening with the microscope. Expand your mind back



beyond the beginnings of the BBC, CBC, NBS, CBS, etc., etc. To the Devonian—what a story, full of drama, sex and lots of violence, at least at the end. If you are really into sex, why not spend some time in the Late Cretaceous when flowering plants were doing their thing—bisexual reproduction in the raw! I recommend parental guidance at all microscope sessions: we must make sure that little minds are not polluted with new ideas.

There is no excuse for the “Death of Palynology,” as lamented so often by our out-of-work oil company palynologists. Palynology is alive and well in Europe, Russia, China, and in universities. Think of all the research you promised yourself you would do. If you were forced to retire, turn off that stupid television set—and get a life in Palynology.

Ludith K. Lentin
Calgary, Alberta

POSITION WANTED

EXPERIENCED technician in both palynology and environment seeks a job, anywhere in the world, including Russia and CEI. If interested please contact:

Alain Tchernetsky-Chouinard,
20 Kentish Dr. S.W., Calgary
Alberta, Canada T2V 2L3.
Email: atcherne@env.gov.ab.ca

IN MEMORIAM

ROBERT M. KOSANKE 1917–1996



Robert M. Kosanke, one of the pioneers of palynological research in North America, died April 17, 1996, at the age of 78, at his home in Lakewood, Colorado, after a short illness. Though he had retired from his 30-year tenure in the Paleontology and Stratigraphy Branch, U.S. Geological Survey, in Denver in 1993, he had continued serious research on several projects and was in his office daily until the end.

Bob was a quiet, serious, and strongly disciplined man of highest integrity. He was careful, logical, thorough, and talented in his work. He was also most generous with his time and talents to students and colleagues. He was dedicated to promoting his sciences and the scientific organizations to which he belonged as an editor, teacher, contributor, officer, administrator, and friend.

Kosanke's introduction to his lifelong commitment to geology, and to research in paleobotany, palynology, and coal geology in particular, came in 1937 when he enrolled in the Physical Geology course at Coe College, taught by L.R. Wilson. Bob had come to Coe College, Cedar Rapids, Iowa, from his home in Park Ridge, Illinois, on a football scholarship. Football practice and team games or trips, required his presence most late afternoons. After Bob missed Wilson's first two afternoon field trips to quarries, sand pits, bogs and glacial features, Wilson was unmoved by Bob's entreaty for special consideration to make up the missed trips with some special reports. Prof. Wilson said acceptable field reports were required to pass the course. At that time, this author (ATC) was the undergraduate assistant in the course. We both roomed at the Y.M.C.A., so after the second field trip (of about 6) Bob came to my room one evening and asked if I could help him. The only solution was to take Bob out on Sundays and retrace the missed field trips with him, explaining as best I could all the features Dr. Wilson had explained. To make the trip more enjoyable for all of us, I included a local woman student, who had a car (a necessity to reach the field sites), and my sister, who was also a student at Coe College. Several similar trips followed the first two “make-up” trips and Bob's reports were more than adequate. Two side-effects, unplanned and unexpected, but with lifelong rewards, emanated from this happening: Wilson encouraged Bob to take up geology as a major and get out of football; and Bob became interested in my sister, Avalonne, without my knowledge. Later, when Bob and I were in Graduate School at the University of Cincinnati, Bob and Avalonne were married, March 5, 1941.

Bob enjoyed his program of studies at Coe College and participated in two general reconnaissance and collecting trips, led by Dr. Wilson, to various major geological points of interest in the High Plains, Rocky Mountains, and intermontane basins. In the 1939 trip he was with Wilson's party of 5 or 6 who climbed the Grand Teton. He wrote a Major Honors thesis on microfossils in a pre-Kansan peat deposit in central Iowa under Wilson's direction (Wilson and Kosanke, 1940).

Bob entered graduate school at the University of Cincinnati in the Department of Botany under Prof. J.H. Hoskins. While there he had opportunity to take many courses equally in botany and geology. Special courses in plant morphology, wood anatomy, plant systematics and ecology were particularly valuable to him in later years in palynology, paleoecology and research on coal constituents and their origin. He also took several courses in paleontology from Dr. Kenneth E. Caster. His M.S. thesis, under Hoskins' direction, was the first palynological study in the Appalachian Coal region, an analysis of pollen and spores and stratigraphic relationships of the Pennsylvanian age Pittsburgh and Pomeroy coal beds in southeastern Ohio (Kosanke, 1943).

Kosanke continued to take additional courses at Cincinnati until he received Dr. Gilbert H. Cady's offer to join the Illinois State Geological Survey Coal Group in January, 1943. There he met Dr. Jack Simon, who still resides in Urbana, and has remained Bob's closest friend and colleague until Bob's death. Bob worked for a short time with Jim Schopf before Schopf joined the U.S. Bureau of Mines in Pittsburgh. At Illinois, Bob became immediately involved in coal palynology, coal petrography, stratigraphy, and mapping coal resources.

In 1945, Bob entered the doctorate program in Botany at University of Illinois, while continuing his work with the Survey. His dissertation, completed in 1955 under the direction of Wilson Stewart, reported on

the morphology of a Pennsylvanian *Calamites* cone, *Mazostachys* (Kosanke, 1955). This was his major paleobotanical research contribution. In 1958 he received a part time appointment at the University of Illinois as Associate Professor, where he taught graduate classes in palynology.

Kosanke's 1950 treatise on the Pennsylvanian palynoflora of the Illinois Basin was the first major basinwide monograph on a pollen/spore flora in North America. His pioneering report included 100 new species of the 130 sporomorphs differentiated from 50 coal beds sampled in 47 counties. A summary of generic characteristics of 19 genera, 5 new, was included. The report demonstrated in detail the value of palynomorphs in the correlation of coal beds. That paper, together with the Schopf, Wilson, Bentall classic (1944), also published by the Illinois State Geological Survey, are epochal contributions that stabilized North American pre-Quaternary paleopalynology research. Kosanke's palynological research at Illinois was ably carried on by his student, Russel A. Peppers, after Bob left in April, 1963, to join the Paleontology and Stratigraphy Branch of the U.S. Geological Survey as Research Geologist. Peppers' two memoirs (1964, 1970) amplified Bob's palynology research in the mid-continent.

Dr. Kosanke's research in his 30-year tenure at the U.S. Geological Survey in Denver included two major long-term projects. The first was working with the Kentucky Branch of U.S. Geological Survey on palynological correlation of several commercial coal beds in eastern Kentucky (Kosanke, 1974, 1965–1972). The last was the palynology of the entire Pennsylvanian stratotype section in West Virginia with supporting work in Ohio. Three major publications (Kosanke, 1988a, 1988b, and 1988c) resulted from this comprehensive enterprise. He was called upon for dozens of other research and service projects in between major assignments. His last major contributions were published as a co-author on three chapters in the very recent GSA Memoir 185, 1995, "Historical Perspectives of Early Twentieth Century Carboniferous Paleobotany in North America" (Kosanke and Cross, 1995; Cross, Kosanke, and Phillips, 1995; and Cross and Kosanke, 1995). The latter paper on the history of Carboniferous palynology in North America provides an extensive overview of early palynological research in which he played so major a role.

Bob has been a long time member of the American Association of Stratigraphic Palynologists (AASP), The Geological Society of America (GSA), the Botanical Society of America (BSA), Paleontological Society (PS), the Society of Economic Geologists (SEG), and the American Association for the Advancement of Science (AAAS). As secretary of the Coal Committee of SEG, 1946–55, Bob, together with colleagues Jim Schopf, Jack Simon, and Gilbert Cady, obtained recognition and permission to hold special technical meetings, symposia, and field trips on palynology and coal geology under the auspices of SEG. These four men were also the founding members of the Coal Geology Division of the Geological Society of America in 1955. Bob was chairman of the Coal Geology Division, 1955–1966 and councilor, 1976–77. He was also secretary three years and later chairman of the Paleobotanical Section. These were the only organizations to regularly sponsor palynology papers and symposia at annual and regional meetings in North America until the founding of AASP in 1967. The Society of Economic Paleontologists and Mineralogists (SEPM) also sponsored two major symposia in which he participated.

Dr. Kosanke received many well-deserved honors and awards. He received the prestigious Geological Society of America Gilbert H. Cady Award for contributions in Coal Geology in 1989, and the Distinguished Service Award (1991) for outstanding contributions to the Coal Geology Division. He was a recipient of the Paleobotanical Section of the Botanical Society 50th Anniversary Award and he was elected Fellow in several societies. In 1993, the U.S. Geological Survey awarded him the Meritorious Service Award. The Denver Botanical Gardens elected him to Life Membership and presented him two awards

for more than 1000 hours volunteer work for each. One event in which he was most honored was in presenting the first Gilbert H. Cady Award to James M. Schopf in 1973.

When I reported his passing to one of his colleagues from the Smithsonian Institution the remark came instantly: "One of the pioneer oaks in palynology and coal geology has fallen." We in the collateral sciences will miss him greatly. My sister, Avalonne Jane, his talented wife of 55 years, and his two sons, Robert Charles of California, and Kenneth Raymond of the Denver area, will miss him even more. We are all beneficiaries of his legacy.

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CANADIAN PALYNOLOGIST HONORED— PIERRE J.H. RICHARD



Pierre J.H. Richard was presented with the Canadian Association of Geographers' Award for Scholarly Distinction during the recent Annual Meeting of the Canadian Association of Geographers in Saskatoon. His citation follows.

In a professional career that spans more than twenty-five years, Dr. Pierre Richard has made an outstanding contribution to our knowledge of the postglacial vegetation history of Québec through the investigation of paleophytogeography—the study of past plant distributions, primarily by pollen and plant macrofossil analysis.

Born in Montréal, Pierre Richard was educated at Laval University, the University of Paris-Orsay, and the University of Montpellier, where he studied with the distinguished palynologist Dr. M. Van Campo. Following five years as Visiting Professor at the University of Québec at Chicoutimi, in 1976 Pierre Richard joined the faculty of the Department of Geography at the University of Montréal, a department he still calls home and which he chaired from 1986 to 1990. Here, he is also director of the Laboratoire Jacques-Rousseau which focuses on research into paleophytogeography and palynology and which, with its extensive reference collection of several thousand pollen samples and macrofossils specimens, is a magnet for students and researchers.

Dr. Richard's main research interests have always been in the vegetation history of Québec. His studies have encompassed all parts of this vast and diverse region, from the Ungava Peninsula and James Bay, to the St. Lawrence Valley and Gaspé. The Laboratoire Jacques-Rousseau archives pollen and plant macrofossil records from over two hundred sites in Quebec. Many of these records have been produced by Pierre Richard or his students and colleagues. These vast amounts of data comprise the BDPMQ (*Base de données polliniques et macrofossiles du Québec*). Much of this information is shared with other researchers through co-operation with other databases, for example the Canadian Palaeoecological Database (at the Geological Survey of Canada, Ottawa, Ontario) and the North American Pollen Database (NAPD at the National Geophysical Data Centre, Boulder, Colorado). Pierre Richard also has a keen interest in pollen taxonomy and identification and has published extensively on these topics, including a series of papers comprising the "Atlas pollinique des arbres et de quelques arbuste indigènes du Québec" in *Le Naturaliste Canadien* (1970), greatly aiding the work of other researchers in eastern Canada.

His contribution, however, has been considerably more than simple data generation and description. His first pollen paper was published 1967 and subsequently he has published almost seventy papers and given numerous conference presentations. His writing shows a truly

geographic perspective, demonstrated by his concern with the analysis and interpretation of the spatial patterns shown in these pollen records, rather than the more traditional, purely site-specific, reconstructions. The availability of many records from throughout Québec now permits the development of regional syntheses. Much of Pierre Richard's recent writing concentrates on the integration of information from these records, documenting broad-scale changes that outline the development of the present vegetation distribution within this huge area. A recent notable example is his examination of "Postglacial palaeophytogeography of the eastern St. Lawrence River Watershed and the climatic signal of the pollen record" (*Palaeogeography, Palaeoclimatology, Palaeoecology*, 1994) which synthesizes pollen work from over 150 sites. His work has also led to significant advances in our understanding of the glacial history of Québec, especially the chronology and character of deglaciation. In recent years, his research has concentrated on the Gaspé region where he has been concerned with late-glacial and early postglacial environmental change. Lately, he has been examining the role of fire in the eastern boreal forest.

Dr. Richard's influence spreads far beyond his personal endeavors as he has been involved in the supervision of more than 35 graduate students and researchers, resulting in the production of eighteen Master's theses and one Doctoral dissertation to date. Several of these former students and associates have gone on to develop their own high-profile academic careers.

Since 1977, Pierre Richard has been involved in the production of the scholarly journal *Géographie physique et Quaternaire*, as editor and director. Under his guidance, GpQ has become the flagship publication for Quaternary work in Canada, and the designated publication outlet for the Canadian Quaternary Association (CANQUA).

Pierre Richard is a member of several national and international professional societies, including AQQUA (Association québécoise pour l'étude du Quaternaire), of which he was a founding member in 1973, and CAP (Canadian Association of Palynologists), to name just two. He takes his duties to these societies seriously, and is a regular and valued contributor to their newsletters. In 1993, his scholarly achievements were given national recognition by his election as a Fellow of the Royal Society of Canada.

No appreciation of Pierre Richard's professional career would be complete without mention of his infectious enthusiasm and generous personality. By conferring this Award for Scholarly Distinction on Dr. Richard, the Canadian Association of Geographers acknowledges the outstanding contributions and intellectual achievements of an inspiring and influential scholar.

Alwynne Beaudoin
Provincial Museum of Alberta, Edmonton

FROM FAR AND WIDE

THE UK SCENE

by Jim Riding, correspondent for the UK

BEGIN this UK report with the sad news of the death of Dr. Mavis A. Butterworth on the 26th of May this year. The funeral was held on the 5th of June at Stockport, Cheshire. Mavis was one of the most prominent figures in Carboniferous palynology and is perhaps best known for her joint publication with Harold Smith, "Miospores in the coal seams of the Carboniferous of Great Britain." This major work was published in June 1967 and is the first of the Palaeontological Association's series "Special Papers in Palaeontology." The mono-

graph runs to 324 pages and 27 plates and it is still deemed to be an indispensable reference on Carboniferous palynology.

Mavis Ann Butterworth was born in early 1927 and went on to study at the University of Edinburgh, graduating in 1949. Her first job was with the Scottish Coal Survey and she published her first paper in 1952. She moved to the Coal Survey Laboratory in Chester. While working for the Coal Survey, Mavis registered as an external research student at her alma mater, the University of Edinburgh and received her PhD in 1949. In the early 1960s she embarked on an academic career when she accepted a place on the staff of the Geology Department at the University of Sheffield, where she worked especially closely with Roger Neves and Herbert Sullivan. In 1963 she moved on to what became the University of Aston in Birmingham; ironically the Department of Geology at Aston was subsumed into the University of Birmingham in the late 1980s. Her former research students at Aston include Mike Whitaker and Salih Malih. Mavis retired from the University five years ago and lived in Alderly Edge in Cheshire. Our sincere condolences go to her family and friends.

Two of our universities have recently decided to withdraw from teaching MSc courses in Micropaleontology. The departments at Aberystwyth and Southampton have made the decision that the current MSc courses in Micropaleontology will be the last that they teach. These course closures were internal decisions and were not enforced by the recent review of UK MSc Micropaleontology courses by the Natural Environment Research Council, one of the UK's federal scientific funding bodies. Naturally, both Aberystwyth and Southampton will be continuing to undertake research in the subject by both staff and research students. These moves mean that the only MSc Micropaleontology courses in the UK are at University College London (Micropaleontology) and the University of Sheffield (Palynology). This self-imposed rationalization, it must be said, reflects more accurately the current market for postgraduate students qualified in micropaleontology.

Please forward UK news reports for the next issue of the Newsletter to me by late summer.

J.B. Riding
British Geological Survey, Keyworth, Nottingham

[An obituary for Mavis Butterworth will appear in a future issue of the Newsletter—Ed.]

MEETING REPORT

by Gordon D. Wood

C.I.M.P. Acritarch Subcommittee Meeting and Workshop

THE Commission Internationale de Microflore du Paléozoïque (C.I.M.P.) Acritarch Subcommittee Meeting and Workshop was convened on the 10–12 April at the Univerzita Karlova, Praha (Charles University, Prague), Czech Republic. Dr. Olda Fatka (Univerzita Karlova) and Dr. Thomas Servais (Université de Liège, Belgium) served as chair and secretary, respectively, of the organizing committee.

Approximately 60 scientists, representing 25 countries, participated in the meeting. The venue consisted of more than 30 oral and 20 poster presentations (authors and titles listed below).

Attendees were welcomed to the meeting by Prof. Dr. P. Cepek, Dean of the Faculty of Sciences. Dr. P. Kraft presented a historical

overview of Charles University and the Palaeontology Department. Thomas Servais followed with a presentation reviewing the history of the Acritarch Subcommittee, including photographs of the initial six person 1966 meeting in Utrecht.

Papers presented considered assemblages ranging in age from Proterozoic to Lower Carboniferous. The contributions represented a variety of subjects including the Mullerisphaeridia, probable pre-Carboniferous Chlorophyta, quantitative biostratigraphic applications (e.g., graphic correlation), paleoecology (palynofacies), processing techniques, sequence stratigraphy, suprageneric systematics and taxonomy.

Workshops and discussion sessions were particularly helpful. Several workers brought microscope slides or work-in-progress photomicrographs/35 mm slides. A most interesting presentation was given by Dr. Alain Le Hérisse (Université de Bretagne Occidentale, Brest, France) concerning *Arpylorus*, a Silurian dinoflagellate. New material from the Tunisian subsurface indicates that previously figured examples were not complete specimens. Discussions between attendees suggested an affinity to the Crustacea be considered as an alternative interpretation.

Following the meeting an elective one-day field excursion, led by Drs. Ivo Chlupáč, Pavel Dufka, and Petr Kraft, was arranged to several classic localities in the Prague Basin. This included visits to the sections whose acritarchs were originally described in several papers by Milada Vavrdová. Bohemian esthetics near two of the localities include the Tock Castle and the Castle of Prince Charles the IV. A highlight of the excursion was a visit to the Klock Section northeast of the village of Suchmoasty. This is the International Stratotype of the Silurian–Devonian boundary. Exposed at this protected section are the Upper Silurian Kopanina and Přídolí formations and lower part of the Devonian Lochkov Formation.

PAPERS OF THE C.I.M.P. ACRITARCH SUBCOMMISSION MEETING AND WORKSHOP

- Al-Ruwaili, M. Silurian palynomorphs from the Qalibah Formation, Saudi Arabia.
- Beck, J.H., and Strother, P.K. Palynology and paleoecology of the Silurian Section at Arisaig, Nova Scotia, Canada.
- Bednarczyk, W. Acritarchs from the lowermost Ordovician of the Holy Cross Mountains (Góry Swietokrzyskie) and their stratigraphic position in the light of conodont studies.
- Brocke, R. Upper Tremadocian to Lower Arenigian acritarchs from the Yangtze Platform, southwest China—preliminary results.
- Brooks, I.P., and Dorning, K.J. The assessment of temperature in deliberately heat treated flint and cherts.
- Burmman, G. Middle Cambrian acritarchs and radiolarians from Lusatia (Germany).
- Clausing, A. Remarks on acritarchs and taphonomy.
- Dorning, K.J. Aspects of Paleozoic Acritarchs.
- Eiserhardt, K.H., and Hüsken, T.C. Morphology, ultrastructure and classification of Paleozoic Mullerisphaeridia.
- Fatka, O., Molyneux, S.G., and Servais, T. The Ordovician acritarch *Frankea*: some critical remarks.
- Filipiak, P. Palynomorphs from Devonian and Carboniferous rocks and their environmental significance from the Western Holy Cross Mountains.
- Fombella, M.A. and Andrade, A. New palynological results from the Oville Formation at SW Vozmediano, Leon (NW Spain).
- Ghavidel-Syooki, M. Biostratigraphy of acritarchs in Paleozoic rock units in the Zagros Basin of Iran.
- Hagenfeldt, S. Lower Paleozoic acritarchs from the Baltic Sea Area.
- Heuse, T., Lehnert, O., and Kraft, P. Organic-walled microfossils incertae sedis from the Ordovician of the Argentine Precordillera and Bohemia.

Jachowicz, M. Lower Palaeozoic acritarch assemblages from the Upper Silesian Block (USB).

Jankauskas, T.R. Cambrian acritarch based biozonation of the Baltic Syncline.

Konzalová, M. Turnover in the Precambrian and Early Paleozoic (mainly Cambrian) microfloras: an example of the Bohemian Massif.

Kozur, H. Muellerisphaerida from Turkey and their stratigraphic importance.

Lakova, I. Basic principles of acritarch grouping at the suprageneric level.

Lakova, I. *Derventia* gen. nov. incertae sedis—enigmatic Silurian organic-walled microfossils from the Strand-zides of SE-Bulgaria.

Lemos de Sousa, M.J., Fernandes, J.P., and Pereira, Z. Elaboration, in Portuguese, of glossaries on organic petrology, geochemistry and palynology: presenting a project.

Masiak, M. Silurian palynomorphs from the Holy Cross Mountains (Central Poland).

Maziane, N. and Vanguestaine, M. The upper Famennian at Chauxhe and Tohogne (eastern Belgium).

Mens, K., Paalits, I., and Puura, I. Upper Cambrian acritarchs from the basal conglomerate of the Kallarere Formation of the Pakri Peninsula, N.W. Estonia.

Molyneux, S. The stratigraphical significance of *Coryphidium* morphotypes in the Lower Ordovician Skiddaw Group of the English Lake District.

Munnecke, A., and Servais, T. Scanning electron microscopy of polished, slightly etched surfaces of Silurian limestones from Gotland (Sweden): a method to observe acritarchs in situ.

Olaru, L. Ordovician acritarchs from the Horia Formation, North Dobrogea County, Romania.

Oulebsir, L., and Azzoune, N. Acritarch biostratigraphy in the Cambro-Ordovician from the Algerian Sahara.

Paalits, I., and Heuse, T. Taxonomic discussion of the genus *Trichosphaeridium* Timofeev 1966 and related genera.

Pacltová, B. Selected acritarchs from the upper Proterozoic of Bohemia.

Parsons, M.G., and Anderson, M.M. Late Cambrian acritarch assemblages from the *Peltura scarabaeoides* and *Acerocare* trilobite zones of Random Island, southeastern Newfoundland.

Rahmani-Antari, K. Paleozoic acritarchs from Morocco.

Ribecai, C., and Tongiorgi, M. Quantitative biostratigraphy (U.A. Method) applied to Early Ordovician palyniferous sequences from northern Öland.

Rubenstein, C. Silurian acritarchs from South America: a review.

Rubenstein, C., Le Hérisse, A., and Steemans, P. Lower Devonian palynomorphs from the Talacasto Formation, Cerro del Fuerte Section, San Juan Precordillera, Argentina.

Servais, T., Brocque, R., Falka, O., Le Hérisse, A., and Molyneux, S.G. Value and understanding of the term acritarch.

Steiner, M. *Chuarina circularis* Walcott 1899—"Megaspheeromorph acritarch" or prokaryotic colony.

Stempian-Salek, M. Some acritarchs of the Upper Palaeozoic from the western Pomerania (NW Poland).

Thomalla, E., Streel, M., and Vanguestaine, M. Any catastrophic event at the Frasnian-Famennian boundary?

Tripathi, A. Acritarch assemblages from Triassic sediments of Talcher Coalfield, Orissa, India.

Vanguestaine, M., Boulvain, F., Coen-Aubert, M., Roche, M., and Oudoire, T. Palynofacies in three near-to off-reef shaly deposits from Late Middle to Late Frasnian Age (Upper Devonian) at Neuville and Frasnes (Dinant Synclinorium, Belgium).

Vavrdová, M. and Isaacson, P. Affinities of Late Devonian acritarchs from the Madre de Dios Basin, Bolivia.

Weiss, R.H. Bibliography of Gondwana palynology and geographical and stratigraphical index.

Weldon, S. A preliminary study of Late Devonian acritarchs from Riescheid North Rhenish State Mountains, Germany.

Wood, G.D. A new bilayered veryhachid from the Llandovery of the mid-continent and eastern United States.

Wood, G.D., and Miller, M.A. Pre-Carboniferous Chlorophyta: new occurrences of Hydrodictyaceae, ?Scenedesmeceae and Zygnemataceae.



THE FIRST ANNUAL CONFERENCE OF IGCP PROJECT 381

Salvador, Bahia, Brazil, 2–5 September 1996

WE are pleased to invite your participation in the First Annual Conference of IGCP Project 381 (SAMC I) to be held next 2–5 September 1996 in Salvador, Bahia, Brazil, in conjunction with the XXXIX Brazilian Geological Congress.

The meeting will focus on interdisciplinary presentations of key topics of research and progress reports of geological correlations for the South Atlantic Mesozoic, identification of key areas and research objectives for the organization of further working groups, and schedule for project meetings (workshops and general meetings). Oral and poster presentations will be arranged within the five "umbrella-type" Project Working Groups:

- (i) Gondwana palaeogeography and stratigraphic correlations.
- (ii) Lower Cretaceous stratigraphic correlations.
- (iii) Lower Cretaceous palaeogeography.
- (iv) Upper Cretaceous stratigraphic correlations.
- (v) Upper Cretaceous palaeogeography and palaeoceanography.

Three SAMC I related thematic symposia will be run as parallel events:

- S 11—Petroleum Systems (Chairman: Marcio R. Mello).
- S 13—Tectonic, Depositional and Evolutionary Aspects of Rift Type Basins (Chairman: Hercules Tadeu F. da Silva).
- S 14—Tectonics and Sedimentation in South American Basins (Chairman: Peter Szatmari).

For more information including registration and field trips please contact Eduardo Koutsoukos or Peter Bengtson.

Eduardo A.M. Koutsoukos (koutsoukos@ccnps.petrobras.gov.br)
Peter Bengtson (Peter.Bengtson@urz.uni-heidelberg.de)

THE SIXTH CANADIAN PALEONTOLOGY CONFERENCE (RESCHEDULED)—

Economic and Applied Paleontology

Corner Brook, Newfoundland, September 28–30, 1996

NEWFOUNDLAND is currently the focus of hydrocarbon and mineral exploration both in terms of surface and subsurface studies and lease bidding. This has provided an unparalleled opportunity for local paleontologists to demonstrate how paleontology can contribute to the location and development of economic plays.

The meeting in September is planned to illustrate the key fossiliferous units of western Newfoundland, ranging in age from Cambrian to Recent and incorporating everything from oceanic graptolitic shales to shallow marine shelly carbonates and fluvial plant-bearing sandstones. The oral forum will include discussion of how paleontological studies can be applied to the solution of economic and other more general geological problems. The three-day meeting will be based in Corner Brook; the first and last days (Saturday, September 28 and Monday, September 30) will comprise excursions to the Port au Port Peninsula,

presently the site of intense hydrocarbon exploration activity. Technical sessions, with mostly oral presentations, will be held on Sunday, September 29 in newly completed facilities at the Sir Wilfred Grenfell College campus of Memorial University of Newfoundland. We will encourage presentations related to the theme for the meeting, although other papers, especially from students, will also be welcome.

A number of medium-priced hotels are available in Corner Brook (e.g., Best Western, Comfort Inn). The airport at Deer Lake is 50 minutes by taxi or shuttle bus, and is served by regular flights from Halifax and St. John's (including both Air Atlantic and Air Nova). At least one 15-seat minibus will be driven from St. John's on September 27, with room for a number of participants interested in seeing a little more of Newfoundland (approximately a 9 hour drive).

We are anticipating a number of non-regulars at this CPC, including representatives from both government and industry, and plan to have both formal and informal discussions with them related to the applications of paleontology. The Second Circular, which will include more detail of schedules, cost estimates, etc. will be mailed during the spring. If you are on the GAC Paleontology Division Newsletter mailing list you will receive it automatically; otherwise, please fill out the form below or contact us via e-mail with your address and telephone number if interested. We are sure that you will find this meeting both an enlightening experience and an excellent opportunity to see and collect from the strata of western Newfoundland.

Convenors:

Henry Williams (williams@sparky2.esd.mun.ca: [709] 737-8395/8142)
Elliott Burden (etburden@morgan.ucs.mun.ca: [709] 737-8388/8142)
Doug Boyce (wdb@zeppo.geosurv.gov.nf.ca: [709] 729-2163/2769)

THE FIRST INTERNATIONAL CONFERENCE— APPLICATIONS OF MICROPALAEONTOLOGY IN ENVIRONMENTAL SCIENCES

The Porter Super-Center for Ecological and Environmental
Studies and Institute for Nature Conservation Research, Tel
Aviv University, Tel Aviv, Israel, June 9–13, 1997

MICROORGANISMS such as foraminifers, ostracodes, diatoms, calcareous nannoplankton, dinoflagellates, pollen and spores are among the main groups in micropaleontology. Their significance for biostratigraphy and paleoenvironmental reconstructions is well known. These microorganisms are very sensitive to environmental changes, both natural and anthropogenic. They can be successfully used as indicators of stressed environments, including anthropogenic pollution. This is especially important for the coastal zone which is strongly affected by human intervention and where these microorganisms are widely distributed.

The conference will introduce to a broader audience the value of microorganisms for a variety of applications, many of which are not generally associated with traditional micropaleontology. It may be presumptuous to call such applications the pointer to the future in micropaleontology, but they may, in part, better focus current discussions regarding the direction micropaleontology will take.

The conference will address in particular the following subjects regarding the applications of micropaleontology to environmental sciences:

- Microorganisms as indicators of naturally stressed environment (e.g., global warming, oxygen deficiency and anoxia, oil-gas seepages, hypersaline and low saline environment, earthquakes, etc.).
- Microorganisms as indicators of productivity

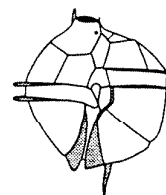
- Microorganisms as indicators of environments anthropogenically polluted by heavy metals, domestic sewage, oil, pesticides, fuel ash, etc.

The main attention of the conference will be devoted to the multidisciplinary study of the living and fossil microorganisms from naturally/anthropogenically stressed environment.

The principal topics will include:

1. Taxonomy
2. Assemblage structure and spatial distribution
3. Density and diversity
4. Pathology of soft tissue
5. Morphology of the shells
6. Chemistry of the shells
7. Methodology and scientific devices
8. Statistical treatment and mathematical modeling

For more details contact Prof. Valentina Yanko, Institute for Nature Conservation Research, Tel Aviv University, Ramat Aviv Tel Aviv, Israel 69978. Fax: 972 640 7304. Email: valyan@post.tau.ac.il



VIII INTERNATIONAL CONFERENCE ON HARMFUL ALGAE

(Vigo, 25–29 June 1997)

THE first circular announcing the VIII INTERNATIONAL CONFERENCE ON HARMFUL ALGAE has met with an enthusiastic response: more than 500 experts from 67 countries have pre-registered. The second circular is now available and asks participants to register formally, and submit abstracts of communications to be presented orally or in poster sessions. Once more, the title of the conference has been changed to adapt itself to increasing interest of the international community to marine and freshwater microalgae, planktonic or benthic, and their toxicity and other harmful effects.

The topics of the conference will be:

I. ECOLOGY AND OCEANOGRAPHY OF HARMFUL ALGAE EVENTS

Models
Physical–biological interactions
Harmful algae–zooplankton interactions
Interactions with viruses, bacteria or other algae
Growth
Physiology (with special emphasis on toxin production)
Biogeography

II. TAXONOMY

Species description by classical taxonomic methods. Image analysis.
Alternative methods: molecular probes, genetic sequencing, neural networks and others

III. TOXINS

New toxins, unknown toxicities, and advances in analytical methods.

In vitro methods: immunoassays, cell assays, enzymatic assays, receptor binding assays.

Transmission of toxins through the food web. Uptake and elimination by bivalves and other organisms.

IV. MANAGEMENT OF TOXIC AND HARMFUL ALGAE EVENTS

Descriptions of events. Impact on public health and on resources

Monitoring of harmful algae and phycotoxins.

Sanitary control and regulations

Mitigation of the harmful effects. Prediction

V. PHARMACOLOGICAL AND EPIDEMIOLOGICAL STUDIES

The conference will comprise: i) Keynote lectures, b) Oral and poster presentations, c) Round table discussions. Professor Raman Margalef of the University of Barcelona (Spain) will give the opening address.

Conference Location.—The scientific sessions will be held in the Cultural Centre "Caixavigo" in Vigo. Vigo is the most populous city of Galicia (NW Spain), base of the biggest fishing fleet in Europe and a major center for aquaculture and the seafood processing industry. It lies in the scenically spectacular Las Bajas, and the hinterland is uniquely rich in Galician cultural activities (Celtic music and dance), and pre-Roman archaeological remains. Vigo is about 1.5 hours by road from the capital of Galicia, Santiago de Compostela (one of the great shrines of Christendom, that has been declared patrimony of humanity by UNESCO) and 3 hours from Oporto in Portugal.

Deadlines.—Submission of abstracts is December 15, 1996. Registration is 1 March 1997. Submission of manuscripts for review is April 20, 1997. Submission of manuscripts in publication format is 31 July 1997. The Second Circular and Call for Papers is available from:

Beatriz Reguera
Conference Coordinator
Instituto Espanol de Oceanografia
Aptdo. 1552. 36280 Vigo.
Fax +34 86 492351
e-mail: insovig@cesga.es

SECOND EUROPEAN MEETING ON THE PALAEOLOGY AND STRATIGRAPHY OF SOUTH AMERICA

Heidelberg, Germany, 2–4 September, 1997

THIS meeting will be held in Heidelberg, Germany, 2–4 September 1997 in conjunction with the 18th IAS Regional Meeting on Sedimentology, and is being organized by P. Bengtson and H. Bahlburg. Further information including registration form is available through the WWW site:

<http://ix.urz.uni-heidelberg.de/~dc8/geo/1st-sam.html>

or from the organizers: Geologisch–Palaeontologisches Institut, Im Neuenheimer Feld 234, D-69120 Heidelberg, Germany; e-mail: Peter.Bengtson@urz.uni-heidelberg.de or Heinrich.Bahlburg@urz.uni-heidelberg.de.

Prof. Dr. Peter Bengtson

Geologisch–Palaeontologisches Institut

Tel.: +49 6221 548293

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E-mail: Peter.Bengtson@urz.uni-heidelberg.de

WWW site: ix.urz.uni-heidelberg.de/~dc8/paleo.html

REGIONAL MEETING OF IGCP PROJECT 381 "SOUTH ATLANTIC MESOZOIC CORRELATIONS"

Heidelberg, Germany, 2–4 September, 1997

THIS meeting will be held in Heidelberg, Germany, 2–4 September 1997 (in conjunction with the 18th IAS Regional Meeting on Sedimentology), organized by P. Bengtson. Further information including registration form is available from Peter Bengtson or through WWW site

<http://ix.urz.uni-heidelberg.de/~dc8/geo/1st-381.html>

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THIRD SYMPOSIUM OF AFRICAN PALYNOLOGY

Johannesburg, South Africa, September 7–13, 1997

ALL palynologists and interested persons are cordially invited to attend the Third Symposium of African Palynology, to be held in Johannesburg, South Africa, from September 7–13 1997. It will be hosted by the Bernard Price Institute, University of the Witwatersrand, under the auspices of the International Association for African Palynology/Association Internationale de Palynologie Africaine.

Proposed topics span the entire range of palynological research in Africa, from paleopalynology to aerobiology.

Besides the formal proceedings, various social functions and excursions are planned.

For further information contact Dr Ann Cadman, BPI (Palaeontology), University of the Witwatersrand, PO WITS, 2050, South Africa, Fax: 27 11 403 1423; E-mail 106caa@cosmos.wits.ac.za

REPRINT SET OF THE HISTORIC "POLLEN AND SPORE CIRCULAR"

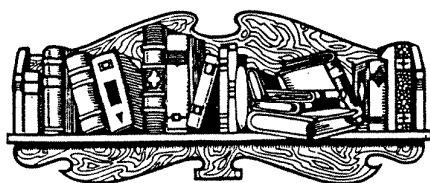
PAUL BIGELOW SEARS sponsored a newsletter called *Pollen and Spore Circular* during World War II and somewhat afterwards. LRC (Limnological Research Center) has a full set of these mimeographed circulars. They are fascinating reading, and I am thinking of having sets made on acid-free paper and bound with a spiral binding. There are probably about 300 pages (two sided). A very crude guess on the cost would be about \$40–\$55 including postage and handling to the USA. Thesis-type (book) binding adds \$16 to the cost.

If you find yourself interested in a copy of the entire circular, please

let me know. If there is enough interest, I will go ahead with the project of making copies for distribution. This would be self-funded, so don't offer to get one unless you really plan to do it.

Dr. Linda C.K. Shane
University of Minnesota
Limnological Research Center
310 Pillsbury Drive SE
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[Comment from Owen K. Davis: This is a kind and generous offer. Note that the title switched from "Pollen Analysis Circular" to "Pollen and Spore Circular" between volumes 8 and 9. I'd like to underscore how important this journal was to the history of our science. The word "PALYNOLOGY" was coined in volume 8 (p. 6) of this journal, after a discussion in volumes 6 (p. 2) and 7 (p.1).]



BOOK REVIEWS

Global Geological Record of Lake Basins, Volume 1. 1994. Edited by E. Gierlowski-Kordesch and K. Kelts. Cambridge University Press. \$120 (US)

This volume, an overview of lakes through geological time, is an outgrowth of the International Geological Correlation Program, Project 219 (Comparative Lacustrine Sedimentology in Space and Time), and is part of the efforts of IGCP-324 (Global Paleoenvironmental Archives in Lake Systems). The volume begins with the "Introduction" by Gierlowski-Kordesch and Kelts who outline the many lacustrine environments and their differentiation from marine environments. This discussion provides a broader view of lakes for those of us whose image of a lake is dominated by temperate latitude experience. Also, Sladen's overview article, "Key elements during the search for hydrocarbons in lake systems," will interest many readers.

The 70 contributions briefly describe a broad spectrum of lakes of various geological periods and contexts, e.g., modern saline lakes of the Fraser Plateau, British Columbia; a proglacial lake of France; Plio-Pleistocene Lake Turkana associated with the East Africa Rift; Paleogene lake deposits in the Madrid Basin, a foreland basin; an upper Triassic playa in a half-graben of North Carolina; and the oldest lake sequence catalogued—the lacustrine shales of the Stoer Group, Scotland, dated ca. 968 Ma.

The descriptions are brief, including structural context, sedimentology and chemistry, and are well illustrated with lithologic logs, maps, cross-sections, and detailed references. Reading the 70 descriptions, each from one to 13 pages in length, is a great cure for insomnia, but these are the terse instruments of the catalogue. One's interest is sparked to wish for inclusion of such succinct write-ups of other well known lakes—Miocene Lake Clarkia, or the Eocene Green River Shales, for example.

To a palynologist, the chief omission is palynology, mentioned only

rarely in this book as providing a date for the lacustrine unit. This omission highlights the opportunity presented by this work. Where else would one find such a catalogue of lake sediments, spanning the Holocene to the late Proterozoic, many of them surely suitable for palynological analysis? This is a valuable global source to search for thesis material. There are potential contributions to be made evolutionary studies, paleoecology or high resolution paleoclimatology.

The editors see this volume as the beginning of a much larger catalogue of lakes through geological time and suggest that proven and new techniques of analysis be applied to the sedimentary records. They suggest standard lithologic symbols and requirements for descriptions, and invite readers to submit descriptions of other lacustrine basins, ancient or modern, to include in future volumes.

James White, Geological Survey of Canada—Calgary
GSC Contribution No. 1996130

Flowering Plant Origin, Evolution and Phylogeny by David Winship Taylor and Leo J. Hickey (editors), 1996, Chapman & Hall, New York. Hardcover, 403 pages with numerous plates and illustrations. ISBN 0-412-05341-1. US\$75.00.

The twelve chapters of this book present the current state of the art in an understanding of angiosperm evolution and phylogeny. Studies of leaf venation, wood anatomy, origin of floral characters, pollen morphology, herbaceous origins of the angiosperms and molecular phylogenies of the angiosperms, are brought together in this one volume. It is the result of the symposium *The Origin, Early Evolution, and Phylogeny of Angiosperms* presented at the American Institute of Biological Sciences (AIBS) held at Ames, Iowa in August of 1994. Taylor and Hickey have edited the contributions and have provided some of the results of their own investigations into the origin of angiosperms.

Trivett and Pigg have surveyed leaf venation patterns of fossil and living groups (pteridophytes, gymnosperms, *Sanmiguelia* and *Pannaulika*) in an attempt to resolve earliest angiosperm origins. *Gnetum* offers the best bet leaf venation pattern in solving this mystery, however, as the authors point out, leaf venation patterns alone do not provide clear cut evidence of a gymnospermous origin for the angiosperms.

Cornet continues the gnetophyte/anthophyte affinity argument in a detailed and very convincing discussion on the nature of *Archaeostrobilus cupulanthus* gen. et sp. nov. (late Carnian Trujillo Formation, Texas). Reproductive features of *A. cupulanthus* and leaves and stems of the associated *Pelourdea poleoensis* provide evidence that place the new taxon in the gnetophytes. Cornet compares *Sarcandra* and *Hedyosmum* with *A. cupulanthus* confirming the primitive status of these Chloranthacean taxa.

In Chapter 4, Carlquist points out major differences in the xylem anatomy of angiosperms and *Gnetum*. He notes that although the Gnetales and angiosperms have been placed close to each other in recent cladistic analyses, other studies involving wood anatomy and other datasets place these two groups well apart. Carlquist suggests that DNA studies of fossil groups is needed to better define the relationship between the Gnetales and the angiosperms.

The nature of the earliest angiosperm pollen has generally been accepted as monolete. Brenner (Chapter 5) however presents results of work that suggests ancestral angiosperms produced *sm²* globose, inaperturate grains with a weakly defined semi-tectate, reticulate exine. His material is from core material of late Valanginian to early Aptian age of Israel. Brenner's evidence supports earlier proposals of

a possible herbaceous origin for angiosperms (see also Chapter 9 by Taylor and Hickey in this same volume).

Taylor and Kirchner (Chapter 6) review recent studies and provide new data on the evolution of the angiosperm carpel, while Tucker and Douglas (Chapter 7) discuss the floral structure and relationships of "paleoherbs." Hickey and Taylor (Chapter 8), in an easy to read and logical manner, review the most plausible theories on the origin of the angiosperm flower. Data provided by Hickey and Taylor suggest that the ancestors of the angiosperms are to be found within the gnetopsids, probably with *Gnetum*. It seems that more and more recent evidence favors the link with a gnetalean ancestor. Chapters 6, 7, and 8 should be read as a group, followed by Chapter 10. In Chapter 10, Laconte, using cladistics, compares alternative hypotheses for the origin of the angiosperms.

I've always enjoyed reading the papers of Thorne on the organization and nature of the most primitive (actually better termed "least specialized") angiosperms. In Chapter 11, Thorne reviews recent paleobotanical information and comparative studies of gymnosperms and ferns coupled with cladistic and molecular studies in his discussion of ancestral angiosperms and their characteristics. It is within these least specialized angiosperms that the basic characters, especially floral characters, are found in living plants. The Magnoliales, Nymphaeales, Rosales, and Liliales are defined by characters including habit, leaf morphology, xylem features, floral characters, and pollen grain morphology.

The final chapter in the volume is by Sytsma and Baum who discuss the usefulness of molecular phylogenies and angiosperm diversification. It is appropriate that Sytsma and Baum have what amounts to the "final word" in as much as they note that "...molecular answers to the timing and pattern of angiosperm diversification remain contradictory and ill-supported." But perhaps of more importance, the authors feel that solutions to the question of relationships of basal lineages of angiosperms can be resolved by combining sources of molecular and morphological data. Chapter 12 and the volume close with the following lines: "The resolution of basal angiosperm relationships may have to await both the collection of additional molecular and morphological data as well as further theoretical advances in phylogenetic systematics."

References and an extensive index are presented at the end of the book. I found that not being actively involved in paleobotanical studies of early angiosperm floral structures and wood anatomy, nor with the current literature concerning cladistic studies, made the reading of some chapters a little slow and difficult. A glossary of specialized terms or concepts may have helped in my appreciation of the authors' arguments and purpose. As the adage implies, "you can't tell a book by its cover," the cover of this volume does little to tell the reader of the varied and significant research results that are included in the pages of this book. Flowering plant origins, phylogenies and evolution is a complex but interesting field of study. The authors have done a fine job of showing this to be true.

D.M. Jarzen
Ottawa

PALYNOLOGY SHORT COURSE

THE Palynological Laboratory, Swedish museum of Natural History runs a short intensive course on Palynology every year during September-October for five weeks. The cost of the course is US\$300.

Gamal El-Ghazaly
Swedish Museum of Natural History

Palynological Laboratory; 104 05 Stockholm; Sweden
Tel: 46 (0)8 6664193; Fax: 46 (0)8 167751
<http://www.nrm.se/pl/plhem.html>

VENDOR DIRECTORY FOR PALYNOLOGY/ MICROPALAEONTOLOGY

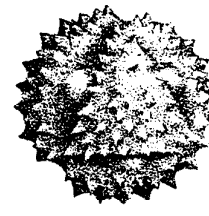
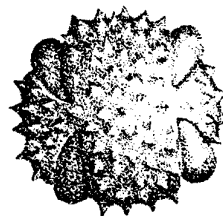
THE following item is from the minutes of the Industry Biostratigraphy Coordinator's Group meeting, held on April 8, 1996 at Amoco's Earth Science Laboratory, Houston. A full version of the minutes was circulated on the internet by Rich Lane of Amoco Corporation, hrlane@amoco.com

Ninth Agenda Item: Pete McLaughlin volunteered to compile the Vendor Directory. The purpose of the directory is to have in one location a complete as possible list of vendors available for paleontologic/biostratigraphic work. The Directory is to include the following information:

1. Vendor name
2. Paleontologists Names
3. Vendor addresses
4. Phone/Fax numbers, e-mail address
5. Services offered
 - a. Fossil Types
 - b. Geologic Age Range of Specialty
 - c. Geographic Specialization
 - d. Previous Company Affiliations
 - e. Experience
 - f. Associated Stratigraphic Data Generated
6. Standard Time Scale Used
7. Data Capture Mode (BugWare, yellow sheet lists, Bug-In, etc.)
8. Products Provided (maps, check-lists, range charts, etc.)
9. Well-site Work (yes or no)
- 10 Current rates

The Directory will be available to anyone inside or outside industry. Industry Biostratigraphy Coordinator (IBC) members are to send their lists to Pete McLaughlin ASAP following the above format agreed to during the meeting. Anyone outside of the IBC who wishes to participate, please send your information to:

Peter McLaughlin, Exxon Exploration, Technology Department, P.O. Box 4778, Houston, TX, 77210-4778, Ph. 713-423-5988, e-mail: pete.mclaughlin@exxon.sprint.com.



POLLEN REFERENCE SLIDES FOR SALE

The Institute of Botany in Beijing has prepared more than 600 taxa of pollen reference slides for sale. If interested, please contact me at qjiang@geo.pku.edu.cn for a list of the taxa.

Qinhua Jiang
qjiang@geo.pku.edu.cn

PALYNOLOGY ON THE WEB

EUROPEAN AEROBIOLOGY INFORMATION & AEROBIOLOGY INTERNATIONAL

A NEW World Wide Web site, European Aerobiology Information (EAI), is now operational and available to everyone at:
<http://www.fisbat.bo.cnr.it/AERO/EAI.html>

This web site is currently being set up to make available information on European aerobiological activities and much more. A group of people from universities and research institutions in Austria, Italy, Spain and the U.K. have combined efforts after the Workshop "WWW & Aerobiology: State of the Art and Lines of Action" recently held in Bologna, and the first version of the site is now available.

The web site AEROBIOLOGY INTERNATIONAL (AI), which has a more international perspective, is also available from the same server, at:

<http://www.fisbat.bo.cnr.it/AERO/AI.html>

The two web sites are closely connected and access to one of them automatically opens the door to the other. Both are heavily under construction and their structure is therefore very tentative. Some services, though, are already available to users and you are cordially invited to visit with us. Happy navigation and see you on the Web!

Vincenzo Levizzani, EAI and AI maintainer
vince@rain.fisbat.bo.cnr.it
<http://www.fisbat.bo.cnr.it>

PALEOBOTANY SECTION WEB SITE

THE Paleobotany Section of the Botanical Society of America now has an official web page. It can be found at:

<http://www.dartmouth.edu/~emczar/paleo.html>

This site has links to other paleo pages and to the Botanical Society of America pages. If you think of things to add or change please contact Charles P. Daghljan at: daghljan@mac.dartmouth.edu

GULF COAST SECTION OF SEPM

THE Gulf Coast Section of SEPM (GCSSEPM) and the GCSSEPM Foundation are pleased to announce that their web site is now online at the following URL:

<http://www.gcssepm.org>

We will try and keep it up to date regarding activities, publications, and research conferences. Y'all invited to take a look and criticize!

Norman C. Rosen, WebMaster
rosen@neosoft.com

THE PALAEONTOLOGICAL ASSOCIATION

THE Palaeontological Association pages have been updated again. New information includes, for example, advance notice of the contents of "Palaeontology" volume 39 part 2.

As usual, all the new information, and dates and information about forthcoming meetings (including the 1996 annual meeting), reports of conferences and field excursions, paleontologists' e-mail addresses,

etc. is available through the PalAss home page at:

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

The PalAss web site is now also available at:

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

which should allow faster access for those in North America.

Mark Purnell, Publicity Officer
map2@leicester.ac.uk

PALEONET PAGES

PALEONET is pleased to announce the release of a US mirror site for the PaleoNet Pages at the University of Berkeley Museum of Paleontology. The site will be formally known as "The PaleoNet Pages (West)" and can be found at the following address:

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

The original PaleoNet Pages (East) site can still be found at:

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

All parties interested in accessing the PaleoNet Pages who are located in North America, Canada, Mexico, Central America, etc. will probably experience faster access times if they use The PaleoNet Pages (West) site. At the moment both the east and west PaleoNet Pages sites contain identical material.

In addition to the release of the PaleoNet Pages (West) site there are two new PaleoNet Forum articles: *The Inevitability of Publishing Electronically About Palaeontology* by M.C. Boulter, and *Interactive Manipulation of Enigmatic Palaeontological Data* by D. Hewzulla and Michael Boulter. These articles are available on both the east and west PaleoNet Pages. Both articles are very timely, considering the explosion of interest in and information about electronic publishing over the last year or so.

In particular I'd like to call your attention to the Hewzulla and Boulter article. This contains a technical discussion of one strategy by which the enormous quantities of data that will soon be available in online databases might be managed using the tools of "Fuzzy Logic." In addition, it provides a link to demonstration of the techniques discussed in the article that provides users with access to segments of data residing within the Plant Fossil Record database and Mike Benton's online version of The Fossil Record 2 database, along with the ability to manipulate, view, download, and model plots based on these data in the form of taxic richness curves. This demonstration, which is the first of its type in the field of paleontology, makes plain the enormous potential of internet-based paleontological publications to go beyond the mere reporting of the static results of a paleontological investigation and provide our community with dynamic tools whereby can immediately participate in the analysis of a particular dataset. Unfortunately, Dilshat and Mike's demonstration relies on access to browser capabilities (e.g., Java) that are only available in the latest generation of WWW browsers and personal computer operating systems. If your computer handle one of the Java-capable browsers you might consider installing one of them, if only to view the demonstration. If not, it would still be worth it to find a computer that has such a browser installed in order to check the demonstration out. Electronic publishing is just getting started in paleontology, and this demonstration may well give all of us insight into the shape of things to come.

Any technical questions on the demonstrations should be directed to the authors of the articles. However, any comments or views as to how our science might benefit, encourage and/or organize the development of such tools should be posted to PaleoNet.

Finally, over the last few weeks I've added many new links to the "Places to Go" page, new announcements of meetings, courses, etc. to

the "Things to Do" page, along with revising the entire style to (hopefully) make the PaleoNet Pages easier and more fun to use. If you haven't taken a look at the PaleoNet Pages recently, you might want to revisit them now.

Norm MacLeod
N.MacLeod@nhm.ac.uk

COMPUTERS IN PALYNOLOGY

STRATADATA LTD

ANYONE interested in computers in biostratigraphy, biostratigraphy or chemostratigraphy, particularly industrial applications should note the following addition to the Web:

<http://dspace.dial.pipex.com/town/parade/au08/>

John Athersuch, StrataData Ltd
E-mail: StrataData@dial.pipex.com
Snail mail: 16 Ottershaw Park, Chobham Road, Ottershaw, Surrey
KT16 0QG, UK
Tel/Fax +44 (0) 1932 872041

NAPD FOSSIL POLLEN DATA FILE TO SPREADSHEET CONVERSION UTILITY

NAPDToSPREAD 1.0 makes fossil pollen data available to researchers using the Macintosh computer platform. The wealth of fossil pollen data available from the NOAA Paleoclimatology Program can be converted to a format where it can be utilized by most commercial data analysis software on the Macintosh, DOS, Windows and UNIX computer platforms. The NAPD FOSSIL.asc to Spreadsheet Conversion Utility will convert the Fossil Pollen database files, (.ASC, .F70, and .P15 files) available from the NOAA Paleoclimatology Program web site (<http://www.ngdc.noaa.gov/paleo/napd.html>), to the standard tab-delimited ASCII spreadsheet format. The spreadsheet data can be referenced to depth or interpreted age (if age is available in the original dataset). The software operation is very simple:

- 1) Download the fossil pollen data files from the paleoclimate internet site.
- 2) Open a NOAA FOSSIL.ASC, .F70, or .P15 source file with the NAPDToSpread 1.0 software utility.
- 3) Optionally, type in a file name for the converted spreadsheet file (a new filename based on the original name is automatically suggested).

The converted data is saved as a TEXT file with an EXCEL icon. Depth or age values are contained in the first column of each row. Species (or category) names are contained in the first row as the column headers, and the resulting sample-by-species matrix is filled out with the corresponding abundance data. Only depth (age), species names and count data are saved. All commentary information is ignored (i.e., all lines starting with the "#" symbol).

In the original format, the data is not readily available for import into most commercial software applications. However, once in spreadsheet format, the utility of the pollen data is greatly enhanced. The resulting tab-delimited ASCII spreadsheet of data can be opened or imported into almost any computer software application on the Macintosh, DOS, Windows and UNIX platforms.

A wide variety of proven commercial spreadsheet or statistics applications may be used to manipulate and analyze the data. WellPlot

1.0 (available from Pierre Zippi) may be used to make range charts and pollen diagrams that can be incorporated into by virtually any Macintosh document.

More information about the NAPDToSpread 1.0 and other stratigraphic, geologic and counting software (mainly for the Macintosh) may be found at my web site:

<http://web2.airmail.net/paz/PAZhome.html>

Alternatively, you may write to me at: 7518 Twin Oaks Court, Garland, TX 75044

Pierre A. Zippi

EDITORIAL

THIS issue reports on the IX IPC (Houston, last month) and announces several upcoming conferences. Award-winning palynologists Hans Gocht, Graham Williams, and Pierre Richard are featured, and this issue also sadly notes the passing of two pioneers in the field of Carboniferous palynology: Mavis A. Butterworth (obituary to follow in a future issue) and Robert M. Kosanke (p. 9-10).

Having served as AASP Newsletter Editor for more than two years and AASP WebMaster for one year, I feel it is now time for me to step aside. The jobs of internetting, editing, typesetting, page layout, and webmastery have been exciting technical challenges, and the task has been made more rewarding by interaction with so many AASP members. My gratitude goes to Judi Lentin and Vaughn Bryant for their constant stream of newsletter items, Bob Clarke for his "can-do" approach to everything, and officers of AASP (particularly Dave Goodman, Jan Jansonius, Dave Pocknall, Reed Wicander, and Gordon Wood) for their support and timely submissions. I am indebted to Newsletter Correspondents Koldo Núñez-Betelu, Niels Poulsen, and Jim Riding for their contributions, to Reed Wicander for arranging countless book reviews, to Geoff Norris for support, and the Department of Geology at the University of Toronto for help in various ways including free web server facilities which allowed me to develop AASP's Web site.

I've agreed to stay on as AASP WebMaster for a little while longer (no one sane person can be found to take on both jobs) but this is my last issue of the Newsletter. It has been great fun and a privilege for me to serve AASP in this way. If you are interested in being the next AASP Newsletter editor, please contact me or Dave Goodman. Before riding off into the sunset, it is my pleasure to announce a possible future AASP editor: **James ("Jamie") Michael Nicholas Head**, born April 15 to delighted parents Sarah and Martin.



Jamie Head—asleep on the job!