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Geological Survey**

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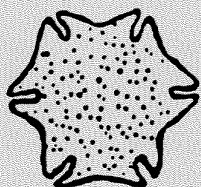
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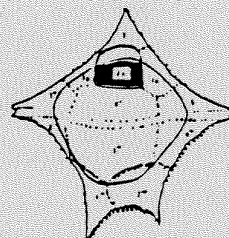
AASP NEWSLETTER

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New Zealand Geological Survey
**PALYNOLOGICAL
PUBLICATIONS**



- **R.A. Couper** 1960: NZ Mesozoic & Cainozoic plant microfossils.
NZGS paleontological bulletin 32. **US\$40.00**
- **G.J. Wilson & C.D. Clowes** 1980: A concise catalogue of organic-walled fossil
dinoflagellate genera. *NZGS report 92.* **US\$30.00**
- **D.T. Pocknall & D.C. Mildenhall** 1984: Late Oligocene - Early Miocene
spores & pollen, Southland, NZ. *NZGS paleontological bulletin 51.* **US\$40.00**
- **J.L. Raine** 1984: Outline of a palynological zonation of Cretaceous to Paleogene
terrestrial sediments in West Coast region, South Island, NZ. *NZGS report 109.* **US\$25.00**
- **D.T. Pocknall & R. Tremain (Comp.)** 1988: NZ palynology & paleobotany:
a field guide to palynological & paleobotanical localities. (Tour LB1,
7th International Palynological Conf., Brisbane, Australia, August 1988).
NZGS record 33. **US\$40.00**
- **G.J. Wilson** 1988: Paleocene & Eocene dinoflagellate cysts from Waipawa,
Hawkes Bay, NZ. *NZGS paleontological bulletin 57.* **US\$60.00**
- **D.C. Mildenhall & D.T. Pocknall** 1989: Miocene-Pleistocene spores and pollen
from Central Otago, NZ. *NZGS paleontological bulletin 59.* **US\$60.00**
- **M.E. Dettmann, D.T. Pocknall, E.J. Romero & M. del C. Zamaloea** 1989:
Nothofagidites Erdtman ex Potonié, 1960: a catalogue of species with notes on the
paleogeographic distribution of *Nothofagus* (Southern Beech).
NZGS paleontological bulletin 60. **US\$50.00**

AVAILABLE SOON

- **N.J. de Jersey & J.L. Raine**: Triassic & earliest Jurassic miospores from the
Murihiku Supergroup, NZ. *NZGS paleontological bulletin 62.*

A total of 60 paleontological bulletins and over 130 paleontological reports have been published in the NZGS Bulletin Series, Report Series and PAL Report Series. A full list, including prices, is available on request.

FOR FURTHER INFORMATION OR ORDERS CONTACT

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AASP NEWSLETTER

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ISSN 0732-6041 F. J. RICH, EDITOR

PRESIDENTIAL MESSAGE

In each of my Presidential messages, I have discussed one of the four goals which I believe could help revitalize palynology:

1. Increase technological innovation
2. Strengthen the teaching of paleopalynology in our academic institutions
3. Communicate more effectively to geoscientists the potential of palynology to solve geologic problems
4. Improve the tools by which we can do our science more effectively.

I will devote this column to this last goal.

Because of the amount of time required for palynologists to gather data, we spend a much smaller percentage of our efforts in interpretation than do non-paleontological disciplines. This increases response time in solving geologic problems and the cost of our services: in short, we tend to be less cost-effective than many other geological disciplines. Any efficiencies we can achieve in data-gathering makes palynology more competitive. Three such efforts merit comment.

Several companies have developed biostratigraphic data entry systems, wherein microscopic observations can be recorded directly on a computer via a digitizing tablet or a voice-activated device. Quantitative and qualitative data thus recorded can be manipulated immediately through graphic display systems to produce report-ready range charts, cross-sections, or other desired plots. Such data can be produced while examining a section, or immediately after the last sample is completed. Some of this software is commercially available, such as the ARCO BUGIN program and the Gearhart Consultants Ltd. Data Entry System. Interested persons can speak with Ray Christopher (ARCO, Dallas) or Ben Johnson (Gearhart, Aberdeen).

A long term effort (Palynodata, Inc.) supported by a consortium of oil companies and the Geological Survey of Canada, has placed most of the world's pre-Pleistocene palynological literature into a database that can be searched for all stratigraphic occurrences of any reported taxa by age and/or geographic area. A bibliographic reference of all cited publications

accompanies each search. This database now contains the information from nearly 16,000 publications, and over 600,000 individual taxa occurrences. This database greatly increases the speed and thoroughness of any bibliographic search. The Palynodata database is now accessible to the general public for a reasonable fee, and efforts are being made to make it available in a PC version. Further details can be obtained from Ken Piel.

Lastly, an AASP Committee, PACSYD, chaired by Rip Ford, has produced a detailed specifications document for software development to store species descriptions and images so that unknown taxa can be compared quickly to those in the literature or to those previously stored in personal files, via high-resolution monitors. This is the initial effort to make available a more efficient system to store and compare microfossil images. Enhancements to this basic capability could further increase our ability to do our science more efficiently.

These three efforts illustrate the impact of the computer on our science, and the value of acting cooperatively in developing tools to increase our impact on employers, clients and students.

I wish to thank all of you who have worked unselfishly to establish programs to reach these goals and others which will revitalize our discipline. The continued vigor and enthusiasm of the volunteer efforts of the AASP membership will assure our continued contribution to geology and related sciences.

Harry Leffingwell

from the Editor's desk.....

After producing four issues of the Newsletter I decided to come out of hiding in this issue and say a few words of my own. Firstly, you should know I do not write the Newsletter, members of AASP do and as far as I'm concerned they do a fine job of it. Please do continue contributing to your Newsletter; this is one of our best means of keeping in touch and, besides, I enjoy hearing from all of you! Secondly, I do not type the Newsletter, though I claim responsibility for the errors that make it across my desk. Please let me acknowledge Donna Cain,

Shawn Hutchinson, and Christio Dowling for having faithfully put all your words into the word processor. Their patience has been most welcome. I must also thank Dr. Jim Darrell for periodically helping with the editing. When I give him the chance he does a fine job and I appreciate it.

This issue is obviously coming out late. I'm very sensitive to this, as I hate to be late and dislike it when others are late. There was so much newsworthy material presented at the Tulsa meeting, however, that I agreed to delay publication until I could assemble everything. I hope you find this issue very "newsy". If there is something you wish to have included in the Newsletter, please feel free to contact me. I can be reached at the Newsletter editor's address (see the cover of this issue) or at (912) 681-5361. My FAX number is 6810196. Thank you all for your contributions, suggestions, and support.

Fredrick J. Rich, Editor

Letters to the Editor:

The gender of *-pollis* and *-sporis*.

In classical Latin, substantives of the third declension ending in *-is* have feminine, or masculine, gender. Among the "rules" for remembering the classical gender in Latin is, that flowers and plants in *-is* are feminine (just as most names of trees in *-us* are feminine). In classical Latin there also is a "common gender", i.e. some words can refer to either a male or a female, like *civis* - which is feminine when referring to a female citizen, masculine when referring to a male citizen.

In plant nomenclature, things have become a bit more complicated by the inclusion of Greek names in *-is*, even if they are treated as Latin (as required by the International Code of Botanical Nomenclature) they retain their Greek gender. A number of freely formed names (including anagrams) in *-is* have been published as well. According to the Code, these take the gender given to them by their original authors.

In the 1956 and 1961 editions of the Botanical Code, Recommendation 75A.1 stated that "...*Hemerocallis* should be treated as feminine in order to bring it into conformity with all other generic names ending in *-is*". In the 1966 edition, this was editorially changed to read "...with almost all other generic names ending in *-is*".

The newly-formed names with the suffixes *-pollis* and *-sporis* were assigned a masculine gender by the authors who first used them. For *-pollis* this can be defended by

the rule of common gender; for *-sporis* this would be acceptable for microspores. On the other hand, it would be as reasonable to apply the classical Latin custom and assign a feminine gender to them, as we are dealing with plant names. But, whatever we do, it is clear that all names sharing these suffixes should have the same gender.

In 1980, Adolphi & Nicolson (Taxon 29:517) wrote a proposal to amend Recommendation 75A.1. They found that in the German text "all" had not been changed into "almost all", did not consider the occurrence of "all" in the previous editions, and pointed to *Cucumis* and names ending in *-pollis* as being masculine. But rather than an editorial adjustment of the German text, they argued for a general simplification of Rec. 75A.1, by deleting the reference to "almost all other generic names ending in *-is*". In the 1988 edition of the Code, this emended Recommendation, in slightly edited form, has become Article 76.1:

"A generic name retains the gender assigned by its author, unless this is contrary to botanical tradition. The following names must be treated as feminine in accordance with botanical tradition, irrespective of classical usage or the authors original usage: *Adonis*, *Diospyros*, *Hemerocallis*, *Orchis*, *Stachys*, and *Strychnos*. *Lotus* and *Meililotus* must be treated as masculine. Note 1. Botanical usage usually maintains the classical gender of a Greek or Latin word, when this was well established."

This, now, is the law.

Jansonius & Hills, in the Genera File of Fossil Spores, and Jansonius (in publications as well as in various editorial functions) lately had been responding to the old Latin usage and the old version of Rec. 75A.1, and assigned a feminine gender to all names in *-is*, including *-pollis* and *-sporis*. I had not been aware of the gradual changes in Rec. 75A.1, which now has become Art. 76.1.

Although I still feel that there was merit in the notion that all newly formed plant names in *-is* should follow the classical custom of taking the feminine gender, it now would take a formal change of Art. 76.1 to translate that notion into correct action. This is because an Article in the ICBN must be followed, whereas a Recommendation has no compulsory force. Also, a new edition of the Code supersedes all previous Codes, and changes must be approved by the International Botanical Congress. It now might be considered useful to editorially include the suffixes *-pollis* and *-sporis* in Art. 76 as having masculine gender, so as to preclude all future confusion. After having contributed to the disarray I will henceforth assign the masculine gender to these suffixes.

(A *propos*: Zabinkova 1968 (Taxon 29:19-33) discusses *extenso* the difficulties of determining the stem of generic names in *-is*)

I am grateful for helpful discussion on this matter by W. Greuter, J. McNeill, D.H. Nicolson, A. Traverse and E.G. Voss.

Ref.: W. Greuter et al (eds) 1988: International Code of Botanical Nomenclature (14th International Botanical Congress, Berlin 1987). Koeltz Scientific Books; D 6240 Koenigstein, W. Germany. DM 60.-

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Hughes on Meyen.

I want to draw attention to N.F. Hughes' review of S.V. Meyen's *Fundamentals of Palaeobotany* (Geol. Mag. 125: 547-549). Hughes surveys the background and organisation of this textbook, but also provides a thought-provoking perspective on the present relationships between paleobotany and palynology. He identifies a general reluctance of paleobotanists to take seriously the study of fossil spores, especially the *sporae dispersae*, as well as their disinclination to rigorously consider the stratigraphic implications of their data. Palynologists, generally from a geological background, on the other hand are apt to neglect the full range of morphological detail, and are slow to fit their data in the paleobotanical framework.

Both disciplines, for various reasons, find themselves having difficulties maintaining their stature and perceived relevance. Hughes concludes that we need a unified paleobotany-palynology approach, and that a first step would be the purposeful merger of IOP (International Organisation of Palaeobotany) and IFPS. His arguments are worth a close look and further consideration.

Jan Jansonius

OPEN LETTER TO ALL AASP MEMBERS RESIDING OVERSEAS

For more than a decade I have had the responsibility for the distribution of *Palynos* (formerly the *ICP Newsletter*) to the members of AASP. This is one of the many fringe benefits of your membership. Although there has been no real problem with our newsletter reaching AASP members in North America twice a year, I fear our coverage of AASP members residing overseas has been incomplete or inconsistent in many cases.

Because many palynologists belong to more than one society affiliated with the International Federation of Palynological Societies (IFPS), it is important that these individuals clearly indicate their primary society, in order to prevent needless duplication of issues of *Palynos*. For example, if an AASP member resides in France, ordinarily that individual's primary society would be the Association de Palinologues de Langue Francaise (APLF); those living in Great Britain would normally designate either the British Micropalaeontological Society, Palynology Group (BMS) or the Linnean Society, Palynology Group (LSPG) as their primary society. In these cases the IFPS Councilors of these societies would then be responsible for the regular mailing of *Palynos* to them.

In previous years I have always airmailed our newsletter directly to AASP members residing in areas without a regional, national or linguistic palynological society affiliated with IFPS, e.g., the Persian Gulf region, the Middle East, African countries, Malaysia, etc.

If you are a member of AASP residing overseas and are not a member of any other local palynological society affiliated with IFPS, then you should be getting *Palynos* either directly from my office or that of the current AASP Secretary-Treasurer in Houston. If this description fits your situation, and if you have not been receiving *Palynos* regularly, please drop me a postcard and I will insure that your name goes on our regular AASP overseas mailing list.

James E. Canright
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PROFESSOR VAN DER HAMMEN RETIRED

Dr. Thomas Van der Hammen retired September 29, 1989 as Professor of Palynology at the University of Amsterdam and as Professor of Palynology of the Quaternary at the Free University (Amsterdam). Van der Hammen, born 27th September 1924, obtained his doctorate degree at the University of Leiden with a thesis entitled "Late-glacial flora and periglacial phenomena in the Netherlands". From October 1951 to September 1959 he was head of the Department of Palynology of the Geological Survey of Colombia (Servicio Nacional) and taught Physical Geology, Palaeobotany and Palynology at several universities in Bogota. Back at Leiden University he was appointed, after a short intermezzo with various field trips and expeditions in the tropics, Reader in Palynology at the University of Amsterdam in 1966. This readership was transmitted in 1980 to a full professorship (Faculty of Biology); moreover, he was

nominated in 1976 at the Free University as Professor extraordinary (Faculty of Earth Sciences).

During a mini-symposium held September 29 and entitled 'Tropical rain forests and paleoclimate' a number of speakers nicely expressed the various aspects of Van der Hammen's main field of interest; changes in the tropical vegetation during the Quaternary in relation to the ice-age periods. Speakers included Dr. M. Servant of ORSTOM, France; Dr. H. Hooghiemstra, University of Amsterdam; Prof. Dr. W. Lauer, University of Bonn, FRG and Dr. G.T. Prance, Director Royal Botanical Gardens and Kew, U. K. Dr. Van der Hammen emphasized this favored theme again in his Valedictory Lecture 'Ice age and rain forest: The Amazon-basin and the Andean mountains as part of the Earth's dynamic ecosystem'. At the end of this meeting several official guests highlighted Van der Hammen's merits. The Secretary of the Board of Directors stressed that no less than eight out of twenty-two official agreements of the University of Amsterdam with foreign institutions were initiated by Thomas. He announced that Her Majesty the Queen has awarded him Knight in the Order of the Nederlandse Leeuw. The Ambassador of the Republic of Colombia emphasized Dr. Van der Hammen's work in this part of Latin America and presented him with two tickets Amsterdam-Bogota (Anita, Thomas' wife is Colombian!)

The reception was attended by hundreds of colleagues out of the world of Archeology, (Paleo) Botany, Geology, Geography and Palynology. The Van der Hammens will be moving to Colombia. Thomas van der Hammen is succeeded at the Free University after October 1st by Dr. Waldo H. Zagwijn who will combine this professorship with his duties as Head of the Department of Scientific Laboratories at the Geological Survey of the Netherlands. The chair at the University of Amsterdam has yet to be fulfilled.

Dr. G.F.W. Herengreen
Geological Survey of
The Netherlands

IBM Personal Computer Compatible Palynological Data System

TAXON, a large set of files on the taxonomy and stratigraphic occurrence of fossil palynomorphs, literature references and command files for access, is now available. This data set, in the form of ASCII files, is IBM compatible, and should be usable on any IBM or IBM clone personal computer. It presently consists of approximately 8 Mbytes of data, and comes with a menu system making access simple. Over 22,500 species of spores, pollen, dinoflagellate cysts, acritarchs and chitinozoans are represented; synonymies are proposed and fully cross-referenced, and brief comments on systematics are also given where appropriate. All data

are non-proprietary, gathered from published literature, or in a few instances, from publically available theses and dissertations. No special database or application software is required.

This data system arose from a personal need to keep track of such information on a desktop computer, and it currently represents about five years' worth of data collecting. It is an ongoing process, and updates will be available whenever desired. The TAXON system is being maintained entirely as a personal effort, and has no official connection with my employer, although their permission and encouragement to release the system in this manner is most gratefully acknowledged.

Here's the good part. It's FREE. Simply send me enough diskettes (either 5 1/4" or 3 1/2") to hold 8 Mbytes of data and I will return them containing all the necessary stuff. Please format the diskettes on your machine prior to mailing, and send me the information on the type of machine you are using and its formatting requirements; I have software allowing me to write to a variety of formats for IBM-compatible machines. Also let me know whether you have a monochrome or color monitor and what version of DOS is in use. MS-DOS 2.0 or above is preferred.

Fear no viruses. No software not written by myself is used. The data may be freely copied. The menuing system will work properly only when installed on a hard disk, but the data files can be searched through normal DOS means on machines having only floppy disk drives. If you have any questions or wish further information please contact me. The system will be maintained and improved as time passes, and updates will be available whenever desired. I am interested in comments and suggestions for improvement and in obtaining relevant literature or copies thereof for articles not yet summarized.

Robert L. Ravn
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Memorial to Francis T. C. Ting 1934-1989

Editor's note: I was saddened to read of Dr. Ting's passing, as reported in the September 1989 Newsletter of the Society for Organic Petrology. Art Cohen, President of TSOP granted me permission to use the following memorial as it appeared in their newsletter. H. B. Lo, author of the memorial was a student of Francis'.

Dr. Francis T.C. Ting, Professor of Geology at West Virginia University died July 20, 1989 of internal bleeding while vacationing in China with his wife, Susan. He returned to Taiwan for hospitalization and seemed to be recovering when internal bleeding recurred for the third and final time.

Francis was born April 26, 1934 in Shantung Province, China. When he was a teenager the family moved to Taiwan where he received his high school and college education. He received a B.S. degree from National Taiwan University in 1957. Then he came to the United States for his graduate studies. He received a M.S. degree from the University of Minnesota in 1962, and a Ph.D. degree from The Pennsylvania State University in 1967. His coal research began with the work on his Ph.D. dissertation which was entitled "Petrology of the Lower Kittanning Coal Seam, Western Pennsylvania". The chairman of his dissertation committee was Dr. W. Spackman.

Professor Ting was interested in all aspects of coal research including petrography, environments of deposition and utilization. He was known as a very creative scientist and he always offered provocative ideas during scientific meetings. He published numerous papers in the following topics: Petrography of coal, lignite and peat; Optical properties of coal; Automated petrographic analysis; Fracture in coal; Residual stress analysis in coal beds; Relation between coalification and tectonic structure; Environments of coal deposition; Coalification patterns; Coal geochemistry; Coal utilization; and Oil Shale petrology.

In addition to his great contribution to coal sciences, Francis T.C. Ting will always be remembered for his warm and optimistic personality.

He is survived by his wife, Susan; two children, Eric and Tracy; his father; and two brothers and one sister.

H. B. Lo
Houston, Texas

EUROPEAN ASSOCIATION OF PETROLEUM GEOSCIENTISTS

P.O. BOX 298, 3700 AG ZEIST, THE NETHERLANDS

PRESS RELEASE

On Tuesday 30 May, 1989, the European Association of Petroleum Geoscientists (EAPG) was formally launched at its Inaugural Meeting in the International Congress Centre in Berlin (West).

For some time the need was felt among European earth scientists for a professional organization which would bring together the various earth-science disciplines used in the search for and the production of oil and natural gas.

About two years ago some officers and members of the European Association of Exploration Geophysicists took the initiative to prepare the launch of the EAPG. More than 400 petroleum professionals joined as Founder Members and have now installed an initial Executive Committee.

The Association aims to bring together the many thousands of petroleum geoscientists in East and West Europe. W.F. Steenken, the Chairman of the new Executive Committee said in his inaugural speech: "Europe, more actively than in the past, is looking for its own identity. Not only the move towards an "EEC without frontiers" in 1992, also the exciting developments in other parts of the continent increase the awareness of a common European destiny. It seems only logical for the European oil industry to respond to this trend of integration."

The new Association held a four-day conference to which many scientists from East and West Europe contributed. Its theme was "Multidisciplinary Petroleum Geoscience: Generation, Accumulation and Production of Europe's Hydrocarbons". This conference ran parallel to a similar one of the EAEG and it is the intention to coordinate closely also future activities of the two sister organisations.

Applications for active and student membership will now be processed. Application forms can be obtained from the EAPG Business Office, P.O. Box 298, 3700 AG Zeist, The Netherlands, telephone: +31. 3404.56997, FAX +31. 3404.62640.

AND THE WINNERS ARE.....

As the **Awards Committee** announced in a previous edition of the Newsletter, the winners of the AASP Scholarship for 1989 are **Philip H. Benham** and **Jeffrey M. Osborn**. Following here, we present their biographical sketches.

PHILIP H. BENHAM

Philip graduated in 1987 with a B.Sc. in Geology from the University of British Columbia, where he concentrated on sedimentology and paleontology. Philip spent four field seasons with the Geological Survey of Canada working on sedimentology, regional geology and permafrost studies. He worked for the G.S.C. as a micropaleontological lab

technician before beginning his graduate program at The Memorial University of Newfoundland, St. John's, in 1988.

Philip's work at M.U.N. is part of an ongoing research program sponsored by his major advisor, Dr. Elliott Burden. The program deals with the litho- and biostratigraphy of the Cretaceous/Tertiary section of the eastern part of the Canadian Arctic archipelago and of the Atlantic seaboard from the Grand Banks north through the Labrador Sea. At this stage of the research program, Burden and his students are identifying, dating, and correlating new formations on this still largely-unexplored continental margin. Philip's research is contributing to the overall effort by adding information about the age and tectonic history of the rocks; his investigation is entitled "Stratigraphy and palynology of Cretaceous and Tertiary strata of North Bylot Basin, Bylot Island, Northwest Canada." The basin has research importance beyond that of regional studies: (1) the strata may contain the most northerly expression of the K/T boundary, and (2) the boundary between the *Normapolles* and *Aquilapollenites* provinces lies in this vicinity. One of Philip's research objectives is to use the palynomorph assemblages to aid correlations between the floral provinces and develop models for floral change.

JEFFREY M. OSBORN

Jeffrey received a B.S. in marine biology in 1985 from Southwest Texas State University, San Marcos, and a M.S. in botany from that institution in 1987. He is currently pursuing a doctorate in palynology/paleobotany in the Department of Botany at The Ohio State University, Columbus, under the direction of Dr. Thomas N. Taylor.

Jeffrey's masters research involved studies on the pollination biology of extant aquatic angiosperms, whereas his doctoral research deals primarily with the ultrastructure of fossil pollen from Gondwanaland, especially Antarctica and Argentina.

Fossil floras from Gondwanaland are less well known than their northern hemisphere counterparts. Knowledge of Gondwana floras is further limited by the fact that palynostratigraphic studies have focused on the analysis of *spora dispersa* by light microscopy. The discovery, however, of pollen-containing sporangia in silicified peat deposits in Antarctica has made it possible for Jeffrey to correlate fine structure and surface morphology of the *in situ* grains, by means of transmission and scanning electron microscopy, and make comparisons with *spora dispersa*. Jeffrey expects these comparisons to help him clarify the natural affinities of the *spora dispersa*, and thus provide more accurate systematic

interpretations. In addition, Jeffrey hopes to contribute to our understanding of the transition from gymnospermy to angiospermy.

Barbara L. Whitney
Chairman, AASP Awards Committee

SMITHSONIAN RESEARCH FELLOWSHIPS IN HISTORY, ART, AND SCIENCE

The Smithsonian Institution announces its research fellowships for 1990-1991 in the fields of History of Science and Technology, Social and Cultural History, History of Art, Anthropology, Biological Sciences, Earth Sciences, and Materials Analysis.

Smithsonian Fellowships are awarded to support independent research in residence at the Smithsonian in association with the research staff and using the Institution's resources. Predoctoral and postdoctoral fellowship appointments for six to twelve months, and graduate student appointments for ten weeks are awarded. Proposals for research in the following areas may be made:

History of Science and Technology
Social and Cultural History
History of Art
Anthropology
Biological Sciences
Earth Sciences
Materials Analysis

Awards are based on merit and applications are due January 15, 1990. For more information and application forms, please write: Smithsonian Institution, Office of Fellowships and Grants, 7300 L'Enfant Plaza, Washington D.C. 20560. Please indicate the particular area in which you propose to conduct research and give the dates of degrees received or expected.

News from the International Organization of Paleobotanists

Editor's Note: Mike Boulter made a presentation at the Tulsa AASP meeting which dealt with the following topic. I know he will appreciate any and all comments pertinent to this proposal.

The Plant and Fossil Record (PFR) project of the International Organization of Paleobotanists plans to include descriptive details of all fossil plant genera, and useful sub-generic taxa, into an agreed standard PC database format.

The first phase of the project, the "Feasibility Study" is being undertaken jointly with the Fossil Plants Committee of the International Association of Plant Taxonomy as part of its Names in Current Use project. It serves as a feasibility study for the more ambitious PFR and ends in May 1990.

Objectives of the feasibility study

1. to encourage trials, the identification of errors and debate
2. to design acceptable hardware and software
3. to agree to an internationally approved standard format for records, software and hardware
4. to incorporate all plant fossil Genera in Current Use within the database together with other information
5. to decide precisely what the database is for

The results will be presented and debated at a meeting in Frankfurt, May 1990, with an expectation that agreement on an international standard format for the PFR database will occur.

Purpose of the Plant Fossil Record

1. to retrieve assemblages, associations, etc. in Regions, Localities, Rock Formations, Strata of the same age, etc.
2. To identify those Genera in Current Use
3. To retrieve an author's taxa, genera, the genera in a family, order, etc.
4. To enable synonymies to be quickly identified
5. To link organs of the same likely whole plant
6. To identify the nomenclatural status of each taxon, e.g. type, new combination, biorecord, comparison record
7. To encourage a standard format for all new descriptions
8. To enable links to other databases and quantitative data stores
9. To provide a living bibliography of paleobotany
10. To enable others than palaeontologists to have easy access to the Plant Fossil Record, for example, by searching for localities, basins, ages, etc.

URGENT ACTION REQUIRED BY AASP MEMBERS

This note is to stimulate debate to achieve agreement on a set of international standards. Please send your comments in writing to the IOP Secretary. Either these will be included in the next IOP Newsletter or made available for debate at the Frankfurt workshop.

Also, please send Records for all new taxa, especially genera, preferably in ASCII on any kind of floppy disc. Better still, please send examples of Records in the formats suggested below, incorporated into the database. A demonstration disc and questionnaire to help programme an efficient user system is available for \$15.00. Contact Michael Coulter (address below).

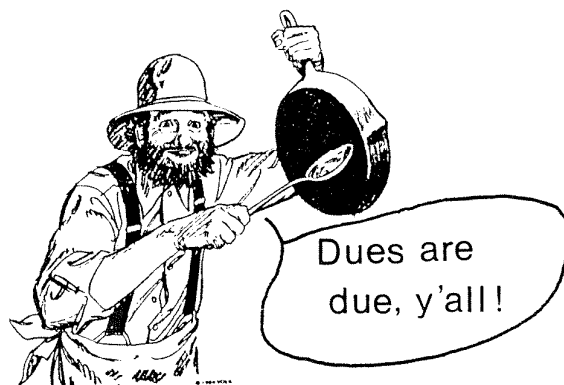
NEWS OF A FORTHCOMING DATABASE MEETING

PLANT FOSSIL RECORD WORKSHOP, Frankfurt, 26-27 May 1990.

This meeting forms the first part of the Krausel Memorial Symposium at the Senckenberg Museum which is to take place 26 May - 3 June 1990. More than 60 palaeobotanists (from USA, Argentina, Canada, South Africa, India, USSR, and most European countries) have submitted applications for the main part of the meeting and it is hoped that as many as possible will also attend this workshop during the first two days.

The workshop marks the formal end of the PFR feasibility study and all the results of our current work will be presented. The draft agenda is as follows:

1. Summary of written comments by palaeontologists on the PFR project
2. Alternative formats for Genera and Species Records
3. Alternative computer hardware and software
4. Demonstrations of pc databases with plant fossil records
5. Progress of the Names in Current Use project
6. A debate on the philosophy and methodology of the PFR project
7. A vote to establish the feasibility of agreeing on international standards for PC hardware, software and Record design
8. If the vote in 7 above is positive, discussion of a draft "Frankfurt Declaration" setting these international standards, followed by a vote to declare them accepted.
9. Consideration of plans for the second phase of the project.



DRAFT FORMAT FOR ALL PLANT FOSSIL RECORDS

| | |
|-------------------------------|--|
| NAME OF TAXON | genus or genus & species or biorecord |
| PFR NUMBER | |
| COMPARISON RECORD STATUS | This field is to include all details of the nomenclatural status of the specimen (s) upon which the Record is based. It may be a type, basynionim, new combination, biorecord cf A-C, etc. |
| | cf T: type cf A: no different features cf B: one different feature cf C: more than one different feature |
| AUTHOR | of taxon |
| DAY/MONTH/YEAR | of first publication |
| REFERENCE | First diagnosis of this Record latest diagnosis/description of this Record |
| ORGAN | |
| ASSOCIATED ORGAN & TAXON NAME | eg. pollen to flower to leaf |
| BOTANICAL RANKING ORDER or < | |
| BOTANICAL RANKING FAMILY | |
| BOTANICAL RANKING GENUS | only needed for some biorecords |
| LOCALITY | Region, locality |
| ROCK FORMATION | |
| SAMPLE POSITION | surface or borehole depth |
| SAMPLE LITHOLOGY | |
| AGE OF SEQUENCE | Elsevier wallchart |
| RADIOMETRIC AGE | after given authority |
| ZONE | after named fossil type |
| NUMBER OF SPECIMENS | |
| DESCRIPTION | * to SYNONOMY or etc. indicates source |
| PRESERVATION | |
| FACIES | |
| REPOSITORY | museum name |
| COMPARISON RECORDS PRESENT | cf B and C in this assemblage |
| EARLIER RECORDS | previous names for <u>this</u> specimen |
| SYNONOMY | usually from SOURCE REFERENCE FOR PFR |
| LINKS TO QUANTITATIVE DATA | other PFR filename |
| LINKS TO PALYNODATA | document number for type description |
| LINKS TO ING | taxon code number |
| LINKS TO MORE DETAILS | other PFR filenames |
| LINKS TO BIBLIOGRAPHY | code to single PFR bibliography |
| ADVISOR/DATE ADDED TO PFR | Regional Advisor's initials |
| SOURCE REFERENCE FOR PFR | best reference for this Record data |
| OTHER NOTES | rubbish bin |

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* * * * *

Meeting of the 1989-1990 Board of Directors in Tulsa

The meeting of AASP's 1989-1990 Board of Directors was held at the end of the annual meeting in Tulsa on October 20 at the Sheraton Kensington Hotel. With the exception of George Hart, all Board members were present: President, Judith Lentin; President-Elect, Barbara Whitney; Secretary-Treasurer, Gordon Wood; Managing Editor, Dave Goodman; and Directors-at-Large, Owen Davis, Norrie Robbins, and Len Eames. Also present were Harry Leffingwell, Past-President; Bob Clarke, Secretary-Treasurer of the AASP Foundation; and 13 other AASP members who were presenting committee reports or who attended the meeting out of general interest.

Our special guest was Dr. Marvin Kauffman, Executive Director of AGI. Dr. Kauffman was very generous with his time, speaking during the day about Earth Science Education in the U.S. and AGI's K - 12 Program, and discussing at the Board meeting other aspects of **AGI's current programs and educational activities**. He discussed some of AGI's publications such as **Geotimes** and **Earth Sciences**. Dr. Kauffman was receptive to the possibility of publishing in one of these journals an article on different aspects of palynology, should we choose to submit one.

Dave McIntyre reported on the plans of the local committee for the **1990 meeting in Banff, Alberta**. Room rates at the Banff Lodge Resort Hotel will be \$99 Canadian (standard) and \$108 (delux). Several topics for possible symposia are under consideration, including Event Stratigraphy; Multi-disciplinary Approaches to Cretaceous Correlations, particularly in the Western Interior; and Anoxic Events. The technical sessions will include presentations by several invited speakers, and Art Sweet will offer an overview of Cretaceous/Tertiary boundary events. Field Trip participants will examine the Upper Paleozoic section in the Front Range and Upper Cretaceous units (Cenomanian through Maastrichtian) in the Foothills, where they will also visit an exposure of the Cretaceous-Tertiary boundary.

Roger Witmer, presenting information from the local committee for the **1991 meeting in San Diego**, discussed plans for AASP to meet concurrently with GSA. AASP will not offer its own field trips, intending instead for AASP members to take part in GSA field trips, which are being offered both before and after the technical sessions. Registration at GSA will not be a requirement for taking part in their field trips. The AASP meeting will be held at the Holiday Inn by the Bay, within walking distance of the Convention Center, the site for GSA's technical sessions. Rates at the Holiday Inn will be \$92 (single) and \$102 (double).

Owen Davis reported that plans for the **Aix-en-Provence meeting (1992)** are proceeding well.

Harry Leffingwell presented the **AGI Committee report** and reviewed AASP's interaction with AGI during the past year.

In representing the **AASP Consortium Committee**, Harry reaffirmed the objective of establishing a consortium of oil companies to support innovative research in palynology. The committee envisions one major project focusing on sequence stratigraphy and two or three ancillary projects on a variety of topics. The committee has looked at several areas for a field study, including the Eocene of the West Coast, the Mid-Cretaceous of the Rocky Mountain Province, and the Lower Tertiary of the Gulf and Atlantic Coasts. Lew Stover submitted a sub-committee report regarding suggested topics for the ancillary projects.

Loretta Satchell updated the Board on the activities of the **Palynological Cataloging System Development (PACSYD)** Committee. The Technical Advisory Committee will put together a modified version of the PACSYD specs to go out for bids as soon as possible, and the project will be a piece of software developed in collaboration with Micropress.

Harry Leffingwell presented the report of the **ANAPS Committee**. The committee's major focus this year is to provide titles for multidisciplinary symposia for the NACP-V meeting in 1992. Harry appointed Steve Jacobson to solicit suggestions from the AASP membership. As a result, several symposia titles were chosen for submission to ANAPS to GSA in St. Louis in November.

The **Ballot Committee for 1990** is as follows: Norrie Robbins (Chairman), Norm Frederiksen, Lucy Edwards, and Ron Litwin.

The **Nominating Committee for 1990** consists of Loretta Satchell (Chairman), Sarah Pierce Damassa, Chris Dennison, Rob Fensome, Bob Turner, and Reed Wicander.

Dr. William R. Evitt and Dr. Lucy M. Cranwell were awarded (in absentia) **AASP Honorary Membership** at the luncheon meeting. The **L. R. Wilson Award for Outstanding Student Paper** was not awarded this year, because the judges could not reach a majority vote on any one student. Barbara Whitney, representing the Awards Committee, emphasized that the judges and members of the Committee are unanimous, however, in commending all participating students for their efforts in carrying out research projects and reporting their results at the meeting. Dave McIntyre was chosen to receive the **Best Poster Presentation Award** for

his entry entitled "Pollen of the fossil forest interval, Geodetic Hills, Axel Heiberg Island." Harry Leffingwell announced that the **Unocal Best Applications Paper** was awarded to two recipients: Doug Nichols ("Cretaceous-Tertiary Boundary in the Powder River Basin, Wyoming and Montana") and Bob Wright ("The Application of Palynology Stratigraphic Interpretation in the Marathon Orogenic Belt, Texas, U.S.A.," presented at last year's meeting.) The award is intended to give applied palynology broader coverage by helping to underwrite expenses for the winner to present the paper to other scientific organizations, such as GSA and AAPG. This is the first year for both the Unocal Award and the Best Poster Award.

Graham Williams proposed a project for **AASP's Silver Jubilee (1992)**, involving the publication of a book "Palynology and Stratigraphy." It is the aim of his committee to compile the work of a number of specialists to cover the various palynomorph groups, entailing extensive stratigraphic coverage, and present accounts of innovative techniques in palynology. They plan for the volume to be printed in 1993.

John Wrenn is the new Chairman of the **Education and Workshop Committee**, charged with establishing guidelines for developing short courses and workshops, in terms of both content and administration.*

Harry Leffingwell reported that the **Chair in Palynology Committee** has nearly completed its visitation to possible sites for the Chair. At the mid-year meeting next Spring in Denver, the Committee will submit to the Board an evaluation of various academic sites for the Chair, from which the Board will make a selection.

Barbara L. Whitney
UNOCAL Science and Technology

Editor's Note: I attended the meeting which Barbara has reported on, and must add one more point. The Board considered increasing dues to help cover some of AASP's increased costs of operation. All the ambitious projects we are undertaking do not come without expense. The Board voted unanimously not to increase dues. I might add that, at this point, it would be right and proper for anyone who isn't current in dues payment to send those in now. For your convenience I have included the annual dues notice in this issue.

*

John would really like your ideas for short course topics. Contact him at Amoco Production Rsch. Ctr., PO Box 3385, Tulsa, OK, USA 74102

BYLAWS CHANGES APPROVED BY BOARD FOR SUBMISSION TO MEMBERSHIP FOR VOTE

At the Annual Board of Directors Meeting in Houston in 1988, the Board requested that an *ad hoc* committee be appointed to investigate the feasibility of amending the By-laws for two purposes.

1) To amend the By-laws such that Annual Meetings could be held earlier in the year should the Association wish to meet concurrently or jointly with a geological society or another paleontological society. An earlier meeting date also could result in lower hotel costs, as October is the peak convention month. Also, less expensive university facilities might be utilized in late summer. Changing meeting dates necessitates a change in the election cycles, as described below.

2) To amend the By-laws to create an additional Board of Directors position, that of Past-President. This change would allow greater continuity and follow-through of initiatives made by the president during his term of office, as commonly one year is not sufficient to get the things done that need doing. Therefore, it is proposed that the president/president-elect serve an additional, third year on the Board as Past-President.

These two proposed amendments were approved by the Board of Directors for submission to membership for vote at the Board Meeting in Tulsa on October 17, 1989.

It is emphasized that the two proposed Bylaws changes, having to do with the timing of the annual meeting and the election cycle and the term of office of the president, are entirely separate; the membership may vote to accept either one of the proposed Bylaws changes, neither of them, or both of them.

According to Article 14 of the Bylaws, proposed Bylaws amendments shall be published in the AASP Newsletter at least six months prior to being put to the membership for vote to insure that adequate time for discussion and communication with the Bylaws Committee is available to the membership.

The following articles establish the present timetable for the nomination, balloting, and election procedures.

I. The Board recommends that the Bylaws be changed so that the nomination and election scheduling occurs earlier in the year. This change would not necessarily change our typical October-November meeting date, but it would give us the flexibility of holding meetings earlier (as early as June 1) if we so desired.

The following articles establish the present timetable for the nomination, balloting, and election procedures:

OLD TEXT

The list of candidates for office must be presented by the Nominating Committee to the Secretary-Treasurer by February 15 (Art. 7.01).

The list is presented to the mid-year meeting of the Board (in March or April), at which time the list is ratified (Art. 6.06.a.6).

The list is sent to the membership not later than May 1 (Art. 7.01).

1-1/2 months (until June 15) are allowed for members to nominate additional candidates (Art. 7.04).

Ballots are sent to members by July 1 (Art. 7.04).

Ballots must be received back by the Ballot Committee by August 15 (Art. 7.04).

The new Board takes office at the annual meeting (Art. 5.02).

The following changes are recommended to change the timing of events so that we would have the flexibility to hold the meetings as early as June 1. Annual meetings for 1990 and 1991 are scheduled for October. The 1992 joint meeting with IPC in France is scheduled for early September.

If approved by the membership, these Bylaws changes would become effective for the 1990-1991 election year. Changes in text are underlined in the old version.

OLD TEXT

Art. 7.01. The Nominating Committee shall propose no more than two (2) candidates for each Board membership. The Nominating Committee shall submit to the Secretary-Treasurer by February 15 of each year a list of nominees together with a statement that all submitted nominees will accept positions upon election. Not later than May 1, the names of candidates for the Board as submitted by the Nominating Committee shall be mailed to the membership. This communication must quote Article 7.03.

NEW TEXT

December 1

January 15

Explanation. The date the Nominating Committee submits its report to the Secretary-Treasurer has been changed from February 15 to December 1.

The deadline for notifying the membership of the nominee slate has been changed from May 1 to January 15.

Art. 7.03. Additional nominations may be made by any member in good standing by submitting a petition, signed by at least nine (9) other members in good standing, to the Secretary-Treasurer by June 15.

NEW TEXT

March 1

Explanation. The deadline for nominations by petition from the membership has been changed from June 15 to March 1. The six week interval for this process remains unchanged.

OLD TEXT

Art. 7.04. The Ballot Committee shall arrange for the preparation and distribution of the ballots to members on or before July 1. Ballots returned to the Ballot Committee prior to the final closing date of August 15 shall be valid; abstaining votes and ballots received later than the closing date shall not be valid. A plurality vote shall be necessary and sufficient for election. In the event of a tie vote, a runoff election will be held. The Ballot Committee shall count all valid ballots and report the results to the Board of Directors through the Secretary-Treasurer.

NEW TEXT

March 15

May 1

Explanation. The deadline for mailing ballots has been changed from July 1 to March 15. The deadline for ballots to be received by the Ballot Committee is changed from August 15 to May 1. It is desirable for the new Board members to have at least a month to prepare for the annual meeting to be held on or after about June 1 rather than on or after about September 15.

OLD TEXT

(text to be changed is underlined)

Art. 6.06.a6. The list of candidates, their biographies, and their letters of acceptance constitute the final report of the Nominating Committee. The report must be presented at the mid-year meeting of the Board of Directors. It may be presented by the Secretary-Treasurer, the Chairman of the Nominating Committee or by any member of the Nominating Committee delegated to do so by the Chairman. Except for the obvious errors, the report should be accepted by the Board without alteration. Following presentation, a copy of the report will be given to the Ballot Committee

Chairman, who will have been selected from among the Directors-at Large at the preceding annual meeting.

NEW TEXT

(new text is underlined)

Art. 6.06.a.6. The list of candidates, their biographies, and their letters of acceptance constitute the final report of the Nominating Committee. The report must be sent to the Board of Directors by December 15 by the Secretary-Treasurer. Except for obvious errors, the report should be accepted by the Board without alteration. The Board resolves any problems and presents a ratified list to the President by January 1. A copy of the ratified report will be given to the Ballot Committee Chairman, who will have been selected from among the Directors-at Large at the preceding annual meeting.

Explanation. This article is changed from requiring that the Ballot Committee Report be presented to the Board and ratified by them during the Midyear meeting, to having it be sent earlier in the year (December 15), and ratified by January 1. This change is necessary to keep the elapsed times between the various nominating, balloting, and election functions comparable to that originally stated in the Bylaws.

II. The Board recommends that the term of the president-elect/president be extended to a third year, during which the person who was just president would serve on the Board as past-president. The Geological Society of America has the past-president serve on the Board of Directors, although they do not have an office of president-elect. The American Association of Petroleum

Geologists has a president-elect on the Executive Committee and also has several past-presidents as members of its Advisory Council.

OLD TEXT

(text to be changed is underlined)

Art. 4.02. The number of Directors shall be eight...

Art. 5.01. The officers of the corporation shall be a President, President-elect, Secretary-Treasurer, Managing Editor, and four (4) Directors-at-Large, all eight of whom shall be members of and constitute the Board of Directors.

Art. 5.02. ... The President, President-elect, and Directors-at-Large shall not succeed themselves. The Secretary-Treasurer and Managing Editor may succeed themselves in office.

NEW TEXT

(new text is underlined)

Art. 4.02. The number of Directors shall be nine....

Art. 5.01. The officers of the corporation shall be a President, President-elect, Past-president, Secretary-Treasurer, Managing Editor, and four (4) Directors-at-Large, all nine of whom shall be members of and constitute the Board of Directors.

Art. 5.02. ...The President, President-elect, Past-president, and Directors-at-Large shall not succeed themselves. The Secretary-Treasurer and Managing Editor may succeed themselves in office.

OLD TEXT

Secretary-Treasurer

Art. 5.06. The Secretary-Treasurer shall keep corporate records....

Managing Editor

Art. 5.07. The Managing Editor shall be responsible for the dissemination of news and technical information....

Directors-at-Large

Art. 5.08. The Board of Directors shall include four (4) Directors-at-Large....

NEW TEXT

Past-president

Art. 5.06. The Past-president shall perform such duties as from time to time may be assigned to him/her by the President or Board of Directors. The President will succeed to the office of Past-president.

Secretary-Treasurer

Art. 5.07. The Secretary-Treasurer shall keep corporate records....

Managing Editor

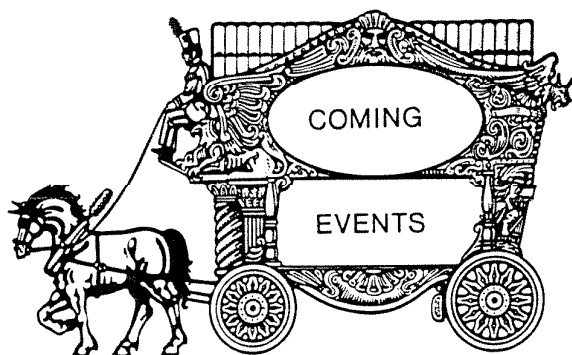
Art. 5.08. The Managing Editor shall be responsible for the dissemination of news and technical information....

Directors-at-Large

Art. 5.09. The Board of Directors shall include four (4) Directors-at-Large....

Explanation. The above changes create the position on the Board of Directors of Past-president, who automatically succeeds to this position following the presidency.

As noted in Article 14 of the Bylaws, quoted above, the AASP membership has at least six months in which to comment on the above proposed Bylaws changes before they are submitted to the membership for a formal vote. The article suggests that such comments be sent to the chair of the Bylaws Committee, who is Norman Frederiksen, U.S. Geological Survey, 970 National Center, Reston, Virginia 22092. The Bylaws Committee will collect the comments and forward them, with Committee recommendations, to the Board of Directors for possible modification of the proposed changes before they are submitted to the membership for final vote.



**1990 Annual Meeting
American Association of Stratigraphic
Palynologists, Inc.
Preliminary Announcement**

The 23rd Annual Meeting of the American Association of Stratigraphic Palynologists will be held in Banff, Alberta, Canada from 10-13 October, 1990. The historic and elegant Banff Springs Hotel, set among spectacular scenery, adjacent to the town of Banff, is the site for the 1990 meeting. Plans for the meeting include interesting symposia and regular sessions, and a field trip, with varied and excellent palynology, geology and scenery, through the Front Ranges and Foothills of the Rocky Mountains.

Plan now to attend the 1990 meeting and spend a few fall days in the clear, clean mountain air of the Banff area. Perhaps you could consider spending a few extra days enjoying activities such as golf, hiking and scenic tours in this beautiful area.

Book Reviews

Roadside Geology of Montana by David Alt and Donald W. Hyndman, 1986, 427 pages, \$12.95 paperback.

Roadside Geology of Virginia by Keith Frye, 1986, 278 pages, \$9.95 paperback.

Roadside Geology of Vermont and New Hampshire by Bradford B. Van Diver, 1987, 230 pages.

Roadside Geology of Alaska by Cathy Connor and Daniel O'Haire, 1988, 250 pages, \$12.95.

Roadside Geology of Wyoming by David R. Lageson and Darwin R. Spearing, 1988, 271 pages.

Roadside Geology of New Mexico by Halka Chronic, 1987, 255 pages, \$9.95.

The above six books, which I have received during the last year, are part of the excellent roadside geology series published by Mountain Press Publishing Company, 2016 Strand Avenue, P.O. Box 2399, Missoula, Montana 59806. This series is intended for those people that want to know more about the geologic history of the areas they drive through, but do not have a geology background.

Each book covers a particular state and begins with an overview of geology including such topics as rocks and minerals, geologic time, and plate tectonics. Each book also incorporates the interrelationship between the geology of the state and its topography and/or its history. Geologic features that are characteristic of the state are explained in more detail such as folding, faulting, volcanism, or glaciation, for example.

Each book is profusely illustrated with maps, cross sections, and photographs of the areas covered. Each area has a simplified geologic map with the major points of geologic interest, and in many cases, elements of cultural or historical interest are mentioned. Each area is discussed in terms of the major interstate and state highways that pass through it.

As I stated in a review of *Roadside Geology of New York* in 1986, these books are written primarily for the layman and geology student, and are not intended to be technical guidebooks. They are general guides to the geology of each state as encountered by the traveler on the major state and interstate highways that crisscross the particular state. At the prices indicated (\$9.95 to \$12.95) they are excellent values and contain a wealth of

information that will make any trip a bit more interesting.

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Four Billion Years: An Essay on the Evolution of Genes and Organisms, by William F. Loomis,

1988, Sinauer Associates, Inc., Sunderland, Mass.
01375, 286 pages, \$22.95 paper, \$39.95 cloth.

As stated on the backcover, this book is directed to anyone interested in biochemistry, molecular biology, and evolution. While it is extremely interesting, it is not intended to be a light evening's reading, and does require some familiarity with basic biochemistry, molecular biology, and genetics. Four Billion Years traces the evolution of life from its prebiological period through the long period of time in which selection acted upon single-celled organisms, to the relatively recent appearance of complex multicellular organisms. While the prebiologic steps leading up to the appearance of living organisms cannot be directly observed, William Loomis discusses the plausible processes that may have occurred based on the biochemistry and cell biology of organisms that have survived to the present-day.

Four Billion Years is divided into five parts.

Part 1. The First 100 Million Years considers the prebiologic environment and chemistry that generated the monomers that appeared in proteins, nucleic acids, and lipids. While the steps necessary to generate the basic components of life cannot be directly observed, the plausible steps necessary for the generation of interactive, autocatalytic macromolecular processes are presented in this section.

Part 2. Genesis covers the stepwise accumulation of biochemical pathways essential to life, and considers in detail each of several dozen reactions as well as the processes that generated sophisticated genes and enzymes, leading to the evolution of primitive cells. This section concludes with a discussion of the amino acid sequences of ancient metabolic enzymes as suggested from the conserved portions of modern enzymes.

Part 3. Bacteria considers the evolution of photosynthetic bacteria from their anaerobic ancestors. The biochemical reactions and pathways that adapted bacteria to aerobic metabolism are discussed in detail in this section.

Part 4. Eukaryotes discusses the evolution of eukaryote cells and in particular the evolution of nuclei, chloroplasts and mitochondria, mitosis and meiosis, multicellular organisms, land plants, vertebrates, extinction of dinosaurs and the rise of mammals.

Part 5. Species discusses the diversity of extant metazoan genes and species from the viewpoint of molecular genetics. Presently, there are only a few gene families such as hemoglobin, histone, and chorion, within which the molecular history and relations within species and across phyla are known in detail.

There is increasing evidence that combinatorial use of a few related gene products has resulted in rapid diversification of species from which present-day organisms have been selected.

The book concludes with a section entitled **Inventory** in which an imaginary voyage is made to ten planets, all of which contain plentiful sunlight and water but different amounts of oxygen. Loomis then discusses and summarizes the types of life forms that might be expected on each planet based on our present understanding of the stages of biological evolution that have occurred on Earth. This survey serves as a partial review of the major points made in the book. As Loomis states: A certain amount of whimsy is unavoidable in this fictitious voyage, and it should only be taken as a point of departure for those that may be more plausible.

For those people interested in the interrelationship of biochemistry, molecular biology, and evolution, this is a fascinating and comprehensible overview of the origin of life and its early history presented from a molecular and genetic viewpoint.

R. Wicander

Phytolith Analysis an Archaeological and Geological Perspective Dolores R. Piperno, New

York: Academic Press, Inc., (1988) xii + 280 pp., illus., biblio., ISBN: 0-12-557175-5, \$49.00.

Scientists who look at plant crystals and pollen grains have much in common. First, both pollen and plant crystals are similar in their size ranges. Second, both disciplines can trace their origins to the 1800s and both got off to a slow start. And third, both disciplines have had problems convincing the rest of the research community of the validity of their science.

Most palynologists have heard of phytoliths (tiny crystals that form in the leaves, stems, fruits, and roots of vascular plants) yet few may realize the importance of this emerging scientific field. In the early part of the 1830s Charles Darwin was one of the first to notice these crystals during his trip on the HMS Beagle. By the late 1800s other scientists noticed these tiny plant crystals yet no detailed studies were conducted until the 1900s. A few studies appeared in the first half of the twentieth century but it wasn't until the past three decades that serious studies were conducted in both

geology and archaeology using phytoliths. Beginning in the mid 1950s geologists and other scientists began using phytoliths as paleoenvironmental indicators and by the early 1970s they were also beginning to use phytoliths to solve archaeological problems. These and other points related to the history of this discipline are chronicled in Piperno's book.

As Dr. Piperno points out, phytoliths are made of siliceous or calcareous substances which are deposited by higher plants in special cells. In the early development of the discipline there was a lack of understanding of how phytoliths were formed, how they could be used accurately as keys to the understanding of sequential changes in paleoenvironments, and how they could be used to solve problems in the fields of geology or ecology. Another major problem during the early phytolith studies was the lack of taxonomic keys illustrating the types and the range of variation among phytolith types occurring in various plant families and genera. Until the publication of this book those problems had plagued phytolith research and slowed the development of the discipline.

Piperno's book is not long, but it is packed with information. For example, there is a chapter on the chemistry of phytoliths, how they are produced, and what chemical conditions in sediments tend to dissolve them. A longer chapter goes into great detail and explains the morphology of phytoliths and how they differ in form and function. Beginning with the phytoliths found in the lower vascular plants, this discussion ends with the many elaborate types and wide varieties found in the monocots and dicots. Other chapters describe the laboratory procedures best suited for extracting phytoliths from fresh or fossil plant materials, how to extract phytoliths from soils and other types of sediments, and how to prepare phytoliths for light or scanning electron microscopy.

The most important chapters are found near the end of the book. The first of these discusses the theory of why phytolith research is valid and the methods used to compile phytolith data. The second details the many ways phytolith research is useful in archaeology. And the third chapter discusses how phytoliths can be used as effective clues in reconstructing the paleoecology of a given region. The author notes in this third chapter that although phytolith data are often used for deposits where oxidation has destroyed organic residues, the most ideal situations occur when phytolith and fossil pollen data from the same deposit can be used to complement each other. As she demonstrates in her book, the resulting data from such combined studies offer a more nearly precise paleovegetational record for a region than the data provided by either phytoliths or pollen alone. It would do all of us well to consider extracting both pollen and phytolith samples from our pollen cores and then conducting both types of analyses.

This book is must reading for Quaternary palynologists and those palynologists who are interested in paleoecology. In sites where severe oxidation has occurred and no fossil pollen or other organic remains are preserved, phytoliths are often the only evidence left to testify about the changes in local and regional vegetation.

Dr. Piperno's book has brought the science of phytolith analysis out of the realm of mystery and placed it on a level with palynology and other important disciplines. Through this book she has defined and explained a new discipline, discussed techniques, included sections of photographs and taxonomic keys, and by using convincing examples has shown us how and why it works.

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Thermal Maturation of Paleozoic Strata in Eastern Canada from Conodont Colour Alteration Index (CAI) Data With Implications for Burial History, Tectonic Evolution, Hotspot Tracks and Mineral and Hydrocarbon

Exploration by G.S. Nowlan and C.R. Barnes, 1987, Geological Survey of Canada Bulletin 367, Geological Survey of Canada, 601 Booth Street, Ottawa, Canada K1A 0E8, 47 pages, \$4.00 Canada, \$4.80 other countries.

This bulletin presents the compilation and interpretation of all available conodont color alteration indices (CAI) data for the Ordovician and Silurian rocks of the Canadian Appalachians, including the orogenic belt and the adjacent Quebec and Anticosti basins. Tens of thousands of conodonts were evaluated to provide conodont CAI values for over 160 localities in Eastern Canada. The conodont CAI values are plotted on a series of five base maps of the Canadian Rockies for each of the chronostratigraphic divisions: Lower, Middle, and Upper Ordovician, and Lower and Upper Silurian. In addition, three summary maps of conodont CAI values are provided for the Quebec Basin, the Anticosti Basin and frontal thrusts of western Newfoundland, and for the Gaspé Peninsula and adjacent New Brunswick areas.

The collections from within the Appalachian Orogen show a wide variation in conodont CAI values reflecting the complex thermal and burial history of the area. Conodont CAI values within the Appalachian Orogen range from around 1 (<50-80°C) to 8 (600°C). The patterns of thermal maturity are interpreted in several ways. Some of the high thermal anomalies are related to the passage of Mesozoic hotspot tracks, while others provide

evidence for late orogenic intrusive events. Low thermal anomalies are related to structural events and are used to refine the tectonostratigraphy of the area. The

conodont CAI data are also used to demonstrate how the temperature and timing of emplacement of ore-bearing fluids that produce Mississippi Valley-type base metal deposits can be determined.

In addition to the wealth of information presented, the authors consider a number of specific areas in Eastern Canada where there are sufficient conodont CAI values to warrant further hydrocarbon exploration. These include: Eastern Gaspé, Gulf of St. Lawrence east of the Gaspé, south and east of Anticosti Island and west of western Newfoundland, the northern Quebec Basin, and the overthrust zones of the frontal thrusts in both Quebec and western Newfoundland.

This bulletin is an initial review of conodont CAI data for the Ordovician and Silurian strata of Eastern Canada. However, enough data have been assembled to determine certain regional patterns and to provide an additional tool for the exploration of hydrocarbon or base metal deposits in the area. Further conodont CAI studies are planned for the area, including the combining of conodont CAI data with organic maturity studies of Carboniferous strata in western Newfoundland currently underway at Memorial University of Newfoundland and with similar data from the Nova Scotia coalfields.

R. Wicander

Encyclopedia Of Paleoherpertology. Part 17 C, Anomodontia by Dr. Gillian King, University Museum, Oxford. Edited by Dr. Peter Wellenhofer, Munich. Gustav Fischer Verlag Wollgrasweg 49, 7000 Stuttgart 72; Suite 909, 202 Es st 23rd St., N.Y., N.Y., 10010. 1988, 174 pages, 42 figures. ISBN 3-437-30483-6; US-ISBN 0-89574-250-0. Price \$138.50(US).

This most impressive reference is the latest tome in the nineteen part Handbuck der Palaeopherpertologie, the monumental effort initiated by Professor Dr. O. Kuhn over two decades ago to summarize all information on fossil amphibians and reptiles. Part 17C, the Anomodontia is in English, as have been most of the more recently published parts, the earlier parts being in German.

Dr. King presents an analysis of the Anomodontia which is both comprehensive and lucid. Dr. King classifies the Anomodontia essentially following Romer, but with only two infraorders: Dinocephalia and Dictynodontia, the latter including the Venjukovioids and Dromasauroids. The problematic, probably polyphyletic, phylogeny of the Dinocephalans and Dictynodonts is briefly but

excellently summarized and cladogramatically illustrated.

The systematic review follows the traditional format for this type of reference but appears unusually complete and contains numerous valuable comments or opinions. Chapters on the General Osteology and Functional Anatomy of each infraorder are exceedingly comprehensive and well illustrated. This reviewer found the discussion of the musculature and motion to be especially interesting and informative. The chapters, Mode of Life, Ecology and Habitat, and Energetics, although short present the authors conclusions in a series of well-reasoned and logical arguments. The discussion of osteologic evidence of head versus flank butting amongst these Therapsids is noteworthy. The general descriptions are uniformly excellent in both clarity and the logic shown in support of conclusions.

The chapter Geographic and Geologic Distribution is painfully brief, but much of the information which would be anticipated therein is found under Ecology. The implications of plate tectonics are only briefly noted and generally address only the climatic and synecologic considerations. Geologic/Geographic distribution is summarized in a table which uses only a tripartite division of the Triassic and bipartite division of the Permian. Although properly detailed biostratigraphic data for the Holotypes are presented in the Systematic Review, there is little or no discussion of the stratigraphic or geographic ranges of these important Permian and Triassic therapsids.

Despite its weakness in stratigraphic and geographic distribution, this is an outstanding reference. It is primarily paleozoological, rather than biostratigraphic, but would be a valuable addition to the library of anyone interested in Permian and Triassic vertebrates.

Dr. Robert B. Sanders
Anchorage, Alaska

The Jurassic Ammonite Cones Of The Soviet Union edited by G. Ya. Krymholts, M. S. Mesezhnikov, and G. E. G. Westermann. 1988. Special Paper 223, The Geological Society of America, 3300 Penrose Place, PO Box 9140, Boulder, Colorado 80301. \$22.50 paperback. 124 pages.

A large amount of stratigraphic data on the Jurassic System is contained in the book **The Jurassic Zones of the USSR** (in Russian) and has been available to only a few in the non-Russian-speaking world. This Special Paper is the result of negotiations between Drs. Krymholts and Mesezhnikov of the Soviet Union and Dr.

Westermann of Canada to have the aforementioned volume revised and translated into English.

Following the brief **Introduction**, the book is divided into chapters, each one of which covers the individual stages of the Jurassic System. Each chapter contains a section on the history and standard zones for that stage, where those rocks of those stages can be found in the Soviet Union, and a summary of that stage in the Soviet Union. In addition, a correlation chart for each stage with the main reference sections of the different regions of the Soviet Union is provided.

A chapter on the **Subdivisions of the continental Jurassic based on plants** follows the section on individual stages and lastly, a chapter on **Conclusions** covers the major points of the book and points out areas of future research concerning the Jurassic of the Soviet Union. Seventeen plates illustrating the **index and guide ammonites of the Soviet Union** follows the chapter on conclusions, and the book ends with a **References** section on the Jurassic System, particularly for the Soviet Union.

Reed Wicander

The Cretaceous System Of Southern South America by A. C. Riccardi. 2988. Memoir 168, The Geological Society of America, 3300 Penrose Place, PO Box 9140, Boulder, Colorado 80301. \$32.00 hardbound. 166 pages.

This memoir contains a synthesis of the existing knowledge of the Cretaceous System of southern South America. It provides a general account of the stratigraphy, magmatism, tectonism, paleontology, and paleogeography of the southern South America region, and an extensive but not exhaustive bibliography of the region for the Cretaceous System.

Following the **Introduction**, which describes previous work in the area and sets forth the scope, and purpose of the memoir, the second part, **General Stratigraphy**, provides a description of the Cretaceous rocks on the basis of generalized sections of the most important areas or basins known in the area to date. These include: Austral Basin, Deseado Massif, Chubut (San Jorge) Basin, Colorado Basin, Macachin Basin, Salado Basin, Santa Lucia-Laguna Merin Basins, Pelotas-Santos Basins, Parana Basin, Chaco-Pampean Plain, Central Argentinian, Aimara Basin, and the Pacific Basins.

The third, fourth, fifth, and sixth parts of the book contain information on the **Paleontology** of the area including its flora, invertebrates, and vertebrates, the **Magmatism** of the area including volcanism and plutonism, **Tectonism**, and the **Geologic Evolution and Paleogeographic Synthesis** of the region.

The book is profusely illustrated with maps, sections, photographs of the area and 18 plates of Cretaceous cephalopods from the region. In addition, a large foldout correlation chart of Cretaceous rocks of southern South America is provided in the backpocket of the book.

The book is an excellent summary of what is known about the Cretaceous System of southern South America and should be in the reference library of everyone that works in the region or is interested in the Cretaceous System.

Reed Wicander

Late Jurassic and Early Cretaceous Palynology of the Perth Basin, Western Australia. By John Backhouse, 1988. Geol. Survey of Western Australia. Perth, Bulletin 435. G.S.W.A., 100 Plain Street, Perth, W.A. 6000 A\$50.00

This publication is the PhD thesis completed by Backhouse in 1984 at the University of Western Australia. The study involved reconnaissance and detailed examination of over 1800 samples from about 200 wells in the Perth Basin. Sample types included conventional cores, sidewall cores, and ditch cuttings. The paper has excellent maps indicating the sample locations, as well as a reasonable discussion of the tectonic and stratigraphic setting in the study area.

The paper is an excellent documentation of the microplankton and miospore assemblages in the Late Jurassic - Early Cretaceous of the Perth Basin, something that I particularly welcome since I began looking at that material shortly after receiving the publication. The taxonomic descriptions are thorough. Descriptions for dinocysts follow the now familiar style of Stover and Evitt (1978). Paratabulation formulae are presented using Kofoidian terminology and the dinocysts are listed alphabetically; i.e., no attempt was made to arrange them on the basis of cyst affinity. I believe that this was a reasonable way to arrange the palynomorphs for systematic treatment. Thirty-two new species are described, of which 11 are miospores, 17 are dinocysts, and 4 are acritarchs. Four new dinocyst genera are described. Line drawings in the text and excellent photomicrographs illustrate the taxa. One generally ends up with a good "feel" for the taxonomic concept of the author; however, I wonder if *Tetrachacysta allenii* and *T. baculata* might not represent ecophenotypes rather than separate species.

One new dinocyst, *Mooradinium*, is particularly interesting. It and another new dinocyst, *Pentafidia*, are interpreted by Backhouse to be indicators of non-marine deposition. That they may indicate a unique depositional environment appears obvious; however, the lack of benthic forms, such as foraminifers and ostracodes, is

not necessarily indicative of a non-marine condition. Ostracodes inhabit a wide range of environments and one would expect to see them in this depositional setting (Benson, R.H., et al. 1961). Their absence might suggest removal by post depositional processes. I believe additional evidence is necessary to support a non-marine interpretation for this unique dinocyst assemblage. For instance, were chlorococcalean algal forms, such as Pediastrum and Scenedesmus, seen in association with Mooradinum and Pentafidia? Pediastrum, Scenedesmus, and other forms have been reported from the English Wealden by Batten and Lister (1988). Similiar algae have been observed from non-marine deposits as old as Triassic by the author and reported by Wille (1970) in Austria.

The paper is well written and, considering its length, relatively free from errata; i.e., on Figure 5 read "Gage Roads 2" for "Roe 2", on p. 34 the distribution of non-marine microplankton is in Figure 8 rather than Figure 7, and on p. 108 Stiprosphaeridium (sic) dictyophorum. These minor problems do not detract from the utility of this publication. It definitely belongs on the bookshelf of any palynologist working the Mesozoic of western Australia, New Guinea, Madagascar and those areas in between. My only complaint is that the soft cover does not withstand handling very well. A good supply of Scotch tape should be available for repair purposes.

Don G. Benson, Jr.
Houston, Texas

References:

- Batten, D.J. and J.K. Lister, 1988. Evidence of freshwater dinoflagellates and other algae in the English Wealden (Early Cretaceous). *Cret. Res.* 9:171-179.
- Benson, R.H., Berdan, J.M., van den Bold, W.A., Hanai, T., Hessland, I., Howe, H.V., Kesling, R.V., Levinson, S.A., Reymont, R.A., Moore, R.C., Scott, H.W., Shaver, R.H., Sohn, I.G., Stover, L.E., Swain, F.M., Sylvester-Bradley, P.C., and J. Wainwright. 1961 Ostracoda. In: *Treatise on Invertebrate Paleontology*, R.C. Moore Ed. Part Q. G.S.A. and U. Kans. Press.

Stover, L.E. & W.R. Evitt, 1978. Analyses of Pre-Pleistocene Organic-Walled Dinoflagellates. *Stanford Univ. Pub. Geological Sciences XV.* 298 p.

Wille, W., 1970. Plaesiodyctyon mosellanum n.g., n. sp. eine mehrzellige Grunalge aus dem Unteren Keuper von Luxemburg. *N. Jb. Geol. Pal.* 5:283-310.

Imprints of Time: The Art of Geology by Bradford B. Van Diver. 1988. Mountain Press Publishing Company, 2016 Strand Avenue, PO Box 2399, Missoula, Montana 59806. \$19.95 paperback. 151 pages.

This paperback book presents in photos and words the art of geology. Its 86 color photographs, all taken by the author, capture the art of geology ranging from photomicrographs of actinolite crystals to a magnificent shot of Lhotse Shar, Everest Group, Nepal.

The book is divided into nine sections. The first section is a short essay in which the author defines the essence of geological art. "The art of geology is Nature's handiwork...and represents a delicate balance between forces of nature that create and forces that destroy. Above all, geologic art is unique because every element of it is a document of Earth history. Reading the rocks requires and promotes an appreciation of geologic time, the time between formation of Earth and now".

From this premise, Van Diver presents color photographs of geological art in the following eight sections. Each section has a short introduction to the type of geology photographed. The sections covered are: Canyonlands, Badlands, Dunescapes, Playas, Ice, The Art of Pele, Microcosms, and Other Places. Other Times.

All of the photographs are, as would be expected, beautiful and well chosen for the themes emphasized. The price for such a book is reasonable. However, I would have preferred that the publishers charged a little more for the book and had it printed as a hardcover rather than paperback. The book is wider than it is tall, and consequently sticks out of my bookcase further than other books. Thus it is already starting to bend and get banged up, something that would not happen if it was a hardcover.

Reed Wicander

McGraw-Hill Encyclopedia of the Geological Sciences, 2nd Edition, Sybil P. Parker, Editor in Chief. 1988. McGraw-Hill, New York, New York. \$85.00 hardbound. 722 pages.

The second edition of this encyclopedia contains 520 separate articles written by 233 specialists in the geological sciences. Forty of the articles are new and 235 have been extensively revised and rewritten. In addition, the book is well illustrated with hundreds of black and white photographs, line drawings, and tables that help amplify and supplement the various articles. All of the information is easily accessible through the

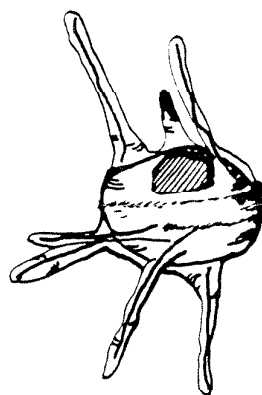
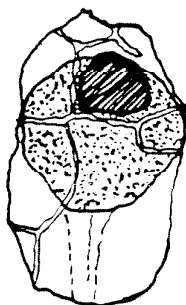
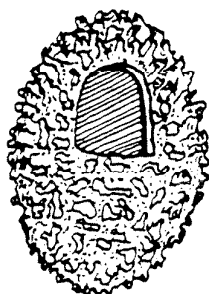
alphabetical arrangement of articles, an easy-to-use system of cross references, and a detailed analytical index.

The second edition of the McGraw-Hill Encyclopedia of the Geological Sciences presents a comprehensive and integrated approach to the geological sciences and focuses on the solid parts of the Earth's system--the essential materials, the processes, the composition, and the physical characteristics. It offers a wealth of theoretical and practical information on all the complex processes and interactions of the Earth.

I found that on the whole, the articles were concise and interesting, and that the single volume encyclopedia was very handy for looking up material when I wanted more than a dictionary definition, but not a detailed treatise on a topic.

My major criticism of the encyclopedia is the near absence of paleontology, much less palynology. In spite of the fact the editors claim the book provides full coverage of such disciplines as geology, geochemistry, geophysics, mineralogy, petrology, historical and surficial geology, paleontology, and soil science, there was little in the book on paleontology. In fact, all of the aforementioned disciplines except paleontology have a separate listing in the index. Paleontology is given cursory coverage under the topic of Dating Methods. Not even the word fossil appears in the encyclopedia. Naturally palynology and the organisms palynologists study was left out completely. I would hope that in the next edition, the editors would see fit to include not only paleontology as a separate category, but palynology and its contributions to the science of geology as well.

Reed Wicander



**AASP SHORT COURSE
NEOGENE TO RECENT DINOFLAGELLATES
TULSA, OKLAHOMA, OCT 15-17, 1989**

Introduction

The first ever AASP sponsored short course was held in Tulsa, Oklahoma, during October 15-17, 1989. The short course dealt with Neogene-Recent dinoflagellates and took place at the Sheraton Kensington Hotel during the three days prior to the AASP Annual Meeting.

Instructors for the short course were Lucy E. Edwards (U.S. Geological Survey), Martin J. Head (University of Toronto), and Karen A. Steidinger (Florida Marine Research Institute), and the on-site coordinator was John H. Wrenn (Amoco, Tulsa). The organizer for this event was Martin J. Head.

The short course was attended by over 30 palynologists, mainly from North America, but from as far away as Taiwan and Alaska. Half of the registrants were from industry, and seven research students were among the remainder. The registration fee, at \$395 for professional and \$295 for students, included a two-volume course manual containing 266 pages and a 217 kodachrome slide set of Neogene-Recent dinoflagellates, an icebreaker with complementary bar and snacks on Monday evening, and coffee each day. Registrants also received a 31 page handout on freshwater dinoflagellates from Lois Pfeister (University of Oklahoma).

Day one (Sunday) focussed on recent dinoflagellates, their morphology, life histories and classification. Karen Steidinger discussed marine dinoflagellates and Lois Pfeister gave an invited presentation of her work on freshwater dinoflagellates. Interest among paleophycologists in freshwater dinoflagellate cysts stems partly from their usefulness to the oil industry in areas where extensive lacustrine and marginal marine deposits are developed (e.g. Alaska and S.E. Asia). A mini-workshop was set up in the afternoon, and both live and preserved thecate material was provided for inspection under the microscope.

Day two (Monday) was dedicated to cyst morphology, during which Martin Head and Lucy Edwards reviewed some one hundred and sixty species of Neogene-Recent dinoflagellate cysts. Species were arranged by a novel scheme of easy-to-use categories based on comparative morphology. Laurent de Verteuil (University of Toronto) gave an invited presentation on the morphology of new protoperidiniacean species from the Miocene of

Maryland (based on a paper by Verteuil and Norris, in press), and John Wrenn gave an invited presentation on selected Neogene-Recent species of *Nematosphaeropsis* mainly from the Gulf of Mexico (based on Wrenn, 1988; *Palynology*, 12: 129-150). All taxa discussed (including undescribed species) were represented by kodachrome slides included in the registration package.

Day three (Tuesday) was given to applied aspects, including the ecology of living dinoflagellates in the marine realm (Karen Steidinger), and the ecology and paleoecology of late Cenozoic dinoflagellate cysts (Lucy Edwards, based in part on Edwards, in press). In the afternoon, Martin Head reviewed the biostratigraphy of late Cenozoic dinoflagellates, providing a welcomed opportunity to reiterate comments made on the comparative morphology of selected species discussed during the previous day. A compilation of stratigraphic ranges (included in the registration material) for more than 150 Neogene taxa, formed the basis of this biostratigraphic synthesis. Sarah Damassa (Winchester, Massachusetts) kindly gave a brief impromptu presentation of selected taxa (*Evittosphaerula* spp. and *Hystriochokolpoma* ? sp.) from the upper Oligocene/lower Miocene of the North Atlantic. Karen Steidinger provided some concluding remarks on late Cenozoic fossil studies from a neophycological perspective, and Martin Head closed the short course by thanking the registrants for their responsiveness, and by expressing the hope that short courses will become a regular feature on AASP's agenda.

Concluding remarks

The encouraging attendance and response to this short course is a measure of the current interest in late Cenozoic dinoflagellates, and particularly of the need to

understand the biology and ecology of living dinoflagellates as they relate to the fossil record. Enormous advances in the paleoecology and biostratigraphy of Neogene and Quaternary dinoflagellates have been made over the past seven or so years, yet large gaps in our knowledge persist. Cyst-thecate relationships are unknown or uncertain for many cyst species that we use in paleoecological reconstructions. Numerous cyst types occurring in recent sediments are not presently assignable to extant species. Cyst morphology is documented in detail for relatively few living species, and the value of cyst morphology in extant dinoflagellate taxonomy is often underutilized. Many fundamental questions concerning cyst production and its relationship to biologic productivity and oceanography, have yet to be answered. Basic research on recent cysts that integrates biological, geological and oceanographic approaches is presently being conducted by little more than a handful of workers, and more widespread activity is needed. It is thus pertinent that the Neogene-Recent short course provided a useful opportunity for biologists and geologists to get together and compare notes, to identify problems of common interest, and to arrange to pursue these problems together.

Karen, Lucy and myself are indebted to the following colleagues who provided samples, microscope slides or photo-slides for our use: Ulderico Biffi (AGIP, Milan), Rex Harland (British Geological Survey), Roger Jan du Chene (Gradignan, France), Laurent Londeix (University of Bordeaux), Kazumi Matsuoka (Nagasaki University), Peta J. Mudie (GSA Atlantic Geoscience Centre), Geoffrey Norris (University of Toronto), Anne de Vernal (Universite du Quebec a Montreal), Laurent de Verteuil (University of Toronto), David Wall (Amoco, Denver), and John H. Wrenn (Amoco, Tulsa). Amoco Production Company provided generous support that enabled the short-course manual to be produced.

Sorry, there are no further copies of the short course manual or kodachrome slide set. Plans are underway, however, to release highlights of the short course manual for publication in the near future.

Martin J. Head (NRD Short Course Organizer)
Department of Geology, University of Toronto

NEW AASP FOUNDATION PUBLICATIONS

Contributions Series Number 21

Illustrated Key to Genera of Lower Cretaceous Terrestrial Palynomorphs
(Excluding Megaspores) of Western Canada

by

Elliott T. Burden and Len V. Hills

Abstract

Abundant and diverse Lower Cretaceous terrestrial palynomorphs in western Canada comprising some 126 genera and 304 species have been compiled into an easily accessed, illustrated systematic guide to genera. This guide, a variant of the "Turma" system, has been divided into 9 "Categories" each containing a morphologic key holding between 2 and 63 genera. To facilitate the identification of palynomorphs with vague or vestigial characteristics (eg. alele grains with non-functional trilete marks) biological relationships have not been stressed and genera have been cross-indexed within and between Categories. Each keyed generic diagnosis has been illustrated by a figure showing the salient features. In addition, 219 species from 103 genera have been illustrated with photographs, and all recognised species have been listed according to their geologic range. Species not illustrated in this guide to the Lower Cretaceous flora include very rare or unique (aberrant?) taxa and the tricolpate and tricolporate angiosperm pollen more common in Upper Cretaceous strata.

The genera *Polycingulatisporites*, *Annulispora*, *Plicatella*, and *Appendicisporites* have been formally emended; one new species *Impardecinsis* n. sp. has been described and a number of new combinations proposed. In addition, there have been 20 geographic range extensions of species into western Canada and 7 taxonomic notes clarifying the morphology or geologic range of species.

146 pages, numerous line drawings, 20 photographic plates. (\$12.00).

Contributions Series Number 22

Alphabetical Index of Fossil Organic Walled Dinoflagellate Species

by

Judith K. Lentin and Graham L. Williams

Abstract

Fossil dinoflagellate species are listed alphabetically, thus providing a rapid check of their generic assignments. Species names are followed by the present generic assignments. Taxa below the rank of species are not included, and questionable assignments of species to individual genera are not indicated. This compilation, which does not include author citation, is based on Lentin and Williams, 1989; Fossil Dinoflagellates: Index to Genera and Species, 1989 Edition published by the AASP Foundation as Contributions Series Number 20.

53 pages. (\$5.00).

MISCELLANEOUS

5. Abstracts - Prediction of Hydrocarbon Reservoir Potential from Paleotemperature and Petrographic Data. A Symposium, November 9, 1988, Houston, Texas. 25 pages (\$4.00).

FIELD TRIP GUIDES (ISSN 0192-737X)

1989 Annual Meeting -- U. Miss./L. Penn. NE Oklahoma. 64 pages, 11 photo plates. (\$7.00).

Other publications available from the AASP Foundation

Oklahoma Geological Survey - palynological publications:

- Bulletin 112. Palynology of the Red Branch Member of the Woodbine Fm. (Cenomanian), Bryan Co., Oklahoma, by R. W. Hedlund. 69 p., 10 plates, 1966. Hard cover \$3.00.
- Bulletin 130. Plant Microfossils from the Denton Shale Member of the Bokchito Fm. (L. Cret.) in Southern Oklahoma, by F. H. Wingate. 93 p., 17 plates, 1981. Hard cover \$12.00, paper \$8.00.
- Circular 32. Microfossils of the Croweburg Coal in Oklahoma, by L. R. Wilson and W. S. Hoffmeister. 57 p., 5 plates, 1956. Paperbound \$2.00.
- Circular 36. Spores of the McAlester-Stigler Coal of Oklahoma, by J. L. Morgan. 54 p., 3 plates, reprinted, 1955. Paperbound \$3.00.
- Circular 49. Permian Plant Microfossils from the Flowerpot Fm., Greer Co., Oklahoma, by L. R. Wilson. 50 p., 3 color plates, 1962. Paperbound \$2.00.
- Circular 56. Pollen & Spores from the Permian Deposits of the Cherdyn' & Aktubinsk areas, Cis-Urals, by R. S. Samoilovich, translated by M. K. Elias. 103 p., 17 plates, 1961. Paper \$2.00.

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(October, 1989)

American Association of Stratigraphic Palynologists Student Scholarship

The American Association of Stratigraphic Palynologists is pleased to announce its program of Student Scholarships to support studies in palynology. Currently, two such scholarship for \$250 (U.S.) each may be awarded annually. Ordinarily the scholarships will be awarded to graduate students, but advanced undergraduate students may also apply.

Basis of Awards - The qualification of the student, the originality and imagination evident in the proposed project, and the likelihood of significant contribution to the science of palynology are factors that will be weighed in selection of award winners.

To Apply - Part A of this form is to be filled out by the student and Part B by the student's faculty supervisor. The faculty supervisor will send both forms together to the address given at the end of Part B. Scholarship applications must be received no later than March 1, and awards will be announced by March 30.

PART A - Application for A.A.S.P. Student Scholarship

Student's name:

Address:

Universities or other institutions attended (earliest listed first). Include the institution that you will be attending during tenure of the scholarship, the degree you will be seeking, and the anticipated completion date:

| Institution | Degree | Beginning Date | Completion Date |
|-------------|--------|----------------|-----------------|
|-------------|--------|----------------|-----------------|

What is your background in palynology?

Professional experience:

Previous awards or honors:

Summary of institutional or other support for your project (specify whether granted or applied for):

Title of proposed investigation:

Project supervisor:

Summary of the investigation (250 words or less, on an attached sheet); include objectives, why you selected this problem and its significance, and how you plan to approach and carry out the investigation.

I agree that the recommendation I am requesting from my faculty supervisor will be held in confidence by officials of my institution, and I hereby waive any rights I may have to examine it.

yes _____ no _____

Date: _____ Applicant's signature: _____

Part B - Endorsement by Faculty Supervisor

1. Ranking of the applicant versus other students you have known who are pursuing the same degree:

lower 50% _____ upper 50% _____ upper 25% _____ upper 10% _____ upper 5% _____

2. Did the idea for the project originate from student? yes___ no___

3. Can you verify the student's statements as to other awards, honors, or financial aid received or applied for? yes___ no___ Comment:

4. Please provide a brief summary (100 words or less, on an attached sheet) or your assessment of the applicant's project and his or her potential to attain the objectives. Among other traits, please comment on the student's native intellectual ability, ability to express her(him)self, perseverance, imagination and the probable creativity, and the value of the project.

Faculty supervisor's name:

Signature: _____ Date: _____

Position: _____ Institution _____

Address:

Please return Parts A and B to:

Dr. Owen Davis
Dept. of Geoscience
Building #77
University of Arizona
Tucson, AZ 85721

ANNUAL DUES NOTICE

AASP Annual dues are payable on or before January 1 of each year. Dues may be paid up to 3 years in advance. PLEASE PAY EARLY AS A COURTESY TO THE SECRETARY-TREASURER. (Checks arriving from a thousand members on December 31st could dampen his holiday spirits!)

Overseas AASP members (Individual or Institutional) who would like to receive their Newsletter and Palynology by Air Mail, rather than surface mail, need to include the applicable postage surcharge - noted below:

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|---|--------------|
| Individual dues: \$20 U.S./yr | \$ _____ |
| Institutional dues: \$30 U.S./yr | \$ _____ |
| <u>Air Mail Surcharge</u> | |
| Europe & South America: \$9.00 U.S. | \$ _____ |
| Africa, Asia & Australia: \$12.00 U.S. | \$ _____ |
| Contribution to the AASP Student Scholarship Fund | \$ _____ |
| Total enclosed U.S. | \$ _____ |

Send dues, surcharge (if applicable) and Student Scholarship contributions, with this form, to:

Dr. Gordon D. Wood
AASP Secretary-Treasurer
Amoco Production Co.
P.O. Box 3092
Houston, TX 77253 U.S.A

BE SURE YOUR NAME IS ON YOUR CHECK OR INTERNATIONAL MONEY ORDER

Your cancelled check is your receipt. If you need a written receipt, advise the Secretary-Treasurer when you pay your dues.

Please answer the following AASP survey question and return this form to Gordon Wood, even if your dues are up-to-date.

Do you consider yourself an earth scientist? ☐ yes ☐ no

Name _____

Address _____

City & State _____ Zip _____

County _____



Membership Application Form

Please type or clearly print all information. The AASP Directory file is limited to 5 lines @ 29 characters.

Date: _____

Address: _____
 (First) (Middle) (Last)

Telephone: _____

Nature of work (graduate student, exploration stratigrapher, etc.)

Send to: Dr. Gordon D. Wood
Amoco Production Company
P.O. Box 3092
Houston, TX 77253 U.S.A.

Please send \$20.00 (US)
with your application.

Change of Address Form

Date: _____

Listed name: _____

Name change: _____
 (First) (Middle) (Last)

Address change: _____

Telephone change: _____

Send to: Dr. Gordon D. Wood
Amoco Production Company
P.O. Box 3092
Houston, TX 77253 U.S.A.