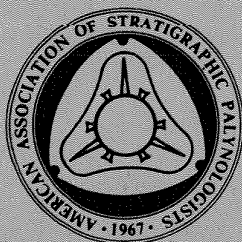


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\_\_\_\_\_  
Nature of work (graduate student, exploration stratigrapher, etc.):  
\_\_\_\_\_

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

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

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Listed Name: \_\_\_\_\_

Name change: \_\_\_\_\_  
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Address change: \_\_\_\_\_

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# AASP NEWSLETTER

VOLUME 19, NUMBER 3

JULY, 1986

R. L. RAVN, EDITOR

ISSN 0732-6041

## NOMADIC PALYNOLOGY

The wanderings of the editor of the AASP Newsletter continue, although not on a scale of the magnitude of previous journeys. The company for whom I toil diligently, tirelessly, without complaining and so forth has reacted to the plummeting price of oil by moving my office. The difference this makes in my address is to change the building from Lincoln Centre 1 to Lincoln Centre 2. All else remains the same. For the purpose of clarity, my address as of the compiling of this Newsletter is Standard Oil Production Company, Lincoln Centre 2, 5400 LBJ Freeway, Dallas, Texas 75240.

## PRESIDENT'S MESSAGE

(Editor's note: Pursuant to recommendations made at the April meeting of the Board of Directors, the Newsletter will now feature a periodic message from the President of AASP; the first installment of these follows.)

For the past few years, there has been a growing concern among a number of AASP members regarding the future of palynology. As U.S. professors with strong programs in palynology retire, their positions are filled by geochemists, geophysicists, and other non-paleontologic specialists. Industrial geologists commonly refer to palynology as a discipline that is distinct and separate from "paleo." Major paleontologic meetings have been organized and held with neither input from nor representation by palynologists.

These and other issues have led some of our colleagues to believe that our science is becoming increasingly isolated from the mainstream of geology. Yet we, as palynologists, are aware of the contributions our science has made and can continue to make not only to geology, but to archeology, climatology, evolutionary theory, botany, and a host of other sciences. If we are perceived by the geological community as a group of isolated, highly specialized scientists, will palynology soon be viewed as esoteric? And, as Vaughn Bryant suggested in his Presidential Address (AASP Newsletter, v. 18, no. 4, p. 2), is extinction the next step for palynology?

Perhaps it is time to initiate an "educational program" to inform our geological colleagues that palynology is a science whose major emphasis is not morphology and taxonomy, but one that addresses, among others, problems of stratigraphic boundaries, mass extinctions, paleogeography, and biostratigraphic correlations, and as such, our science is an integral part

of historical geology. We need to inform the scientific community of the types of problems that can be addressed by palynology; we need to illustrate the impact palynology can have in resolving major geological issues; and we need to build strong relationships with specialists in other paleontological disciplines.

Suggestions that have been offered for addressing this "educational" issue are: Hold our annual meetings in conjunction with those of other organizations, promote seminars and lectures at universities, and affiliate with other geological societies. If the future of palynology is in question, then we must begin to address the problem now, and the Board of Directors would welcome your suggestions. As a first step, the Board will hold an open discussion of the problem at this year's AASP Annual Meeting, on Wednesday evening, October 29, 1986, following the scheduled ice-breaker. The time and place of the discussion will be posted, but it will be held in close proximity to one of the lounges in the Milford Plaza in an attempt to maximize attendance. If you cannot attend the discussion but have ideas to offer, please contact one of the Board Members.

Ray Christopher, President, AASP

## LETTER TO THE EDITOR

I was one of the founders of AASP and would like, in theory at least, to attend each of the annual gatherings. It was financially impossible when I lived in England but, when I immigrated to Canada fourteen years ago, I had hoped that matters might change. In practice, during those fourteen years, I have managed to attend no more than three sessions.

Though some advance programmes have been a little less than inspiring, the principal reason for this non-attendance is financial. Saskatoon, though an attractive city, is remote even in Canadian terms; air fares are high and, whereas the Canadian dollar is a little better than stable in terms of world currencies, the U.S. dollar is rising and imposes an automatic 30% surcharge on all costs. Each year, I face a choice as to whether to spend my limited research funds on field work, laboratory visits or conferences. Over the last few years, the need to examine European type material has essentially settled the question and left me with only enough funds for one meeting, if any at all. The choice between GSA, AAPG, SEPM and AASP has been a difficult one -- and AASP has not always won out.

AASP Newsletter is published quarterly by American Association of Stratigraphic Palynologists, Inc.

I welcome, therefore, Lynn Brant's submission and your reaction to it. For my part, I would find it easier to attend AASP regularly if it were regularly allied to one of those other gatherings, either preceding or succeeding the main meeting. SEPM would be the prime choice, since AAPG is too overwhelming -- and, in recent times, somewhat too gloomy in atmosphere.

I hope our Executive will investigate the chances of an alliance. An alternative might be to hold AASP, not in the same city as the bigger gathering, but in some smaller centre nearby -- which would give the stimulus of a different atmosphere, while keeping travel costs low.

William A. S. Sarjeant, Department of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.

Editor's response:

The letter from Lynn Brant, to which Dr. Sarjeant refers, appeared in the Newsletter, v. 19, no. 1, at the beginning of the year. As this issue has been the topic of considerable discussion and concern at the April Board of Director's meeting and elsewhere, I would like to solicit further comments from the membership for the Newsletter, and to recommend most strongly that all who can attend the discussion announced in Ray Christopher's Presidential Address. Members should be aware that to arrange such a radical departure from past practices of AASP meetings would involve some fundamental and perhaps awkward changes in organizational procedures including possibly amending the bylaws.

#### NEW MEMBERS

Individual:

Susan Carty, Box 1201, Mattituck, NY 11952.

Marcus D. Jakeman, Robertson Research Int., Ltd, Ty'n-y-Coed, Llanrhos, Llandudno, Gwynedd, Wales LL30 1SA U.K.

David W. Jolley, Robertson Research Int., Ltd, Ty'n-y-Coed, Llanrhos, Llandudno, Gwynedd, Wales LL30 1SA U.K.

K.-H. Kirsch, Inst. Paläontol. und Hist. Geol., 8000 München 2, Richard-Wagnerstr. 10/II, West Germany.

Oscar H. Papu, PRIBIPA CRICYT-ME, CC 131, 5500 Mendoza, Argentina.

Vita Pariente, 3841 Mentore Ave. #22, Culver City, CA 90230.

Shirley A. Pickering, 31 Woodward Street, Cromer, New South Wales, Australia 2099.

Mercedes B Pramparo, PRIBIPA CRICYT-ME, CC 131, 5500 Mendoza, Argentina.

Atle J. Scholze, Institutt for Geologi, PB 1047, Blindern 0316, Norway.

Sukla Sengupta, Gearhart Geoconsultants Ltd., 118 Tagore Lane Vanguard, Industrial Estate, Singapore 2678.

Robert S. Thompson, Dept. Geological Sciences, Brown University, Providence, RI 02912-1846.

Huibert Aart van den Brink, K.S.E.P.L. EP 121 Shell, Volmerlaan 6, 2288 GD Rijswijk, Holland.

Michael F. Whitaker, Geochem Laboratories, Ltd, Chester Street Saltney, Chester CH4 8RD, England.

Ana M. Zavattieri, PRIBIPA CRICYT-ME, CC 131, 5500 Mendoza, Argentina.

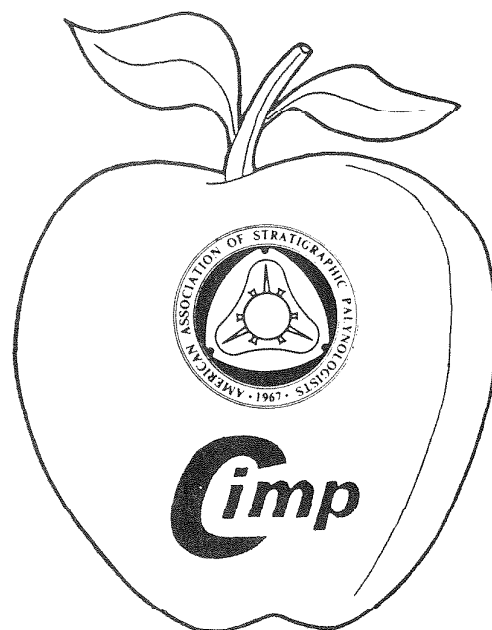
Institutional:

Geology Department, University of Sallahaddin, Central Library, Arbil, Iraq

P. T. Corelab Indonesia, Building 303, Cilandak Commercial Estate, Jalan Cilandak KKO, Jakarta 12560, Indonesia.

Shell Explor. Prod. Peru B.V., Attn: B. Espinoza, Andres Reyes 320, San Isidro, Lima, Apartado 14-10390, Peru.

The University of Jordan, the Library, Serials Department, Amman, Jordan.



#### 1986 AASP ANNUAL MEETING REMINDERS

Plan A for this issue of the Newsletter was to include a full schedule of presentations and registration forms, etc., for this year's AASP Annual Meeting in New York. General Chairman Dan Habib, however, was able to secure the cooperation of the City University of New York to mail the schedule, forms and other material out directly, first-class, to allow earlier receipt by AASP members. Therefore, if you see this Newsletter before you have received your AASP registration materials, something is wrong and you should contact Dan immediately. His address appears following these meeting reminders, which constitute Plan B for this issue of the Newsletter.

Ed.

#### Location

The 19th Annual Meeting of AASP and third joint meeting with the Commission International de Microflore du Paleozoique will take place at the Graduate Center of the City University of New York, located in midtown Manhattan at 33 West 42nd Street. The symposia and technical sessions will take place in the Graduate Center's modern 246-seat capacity Auditorium. The poster sessions will be held in the 3rd floor Studio of the building, along with the commercial exhibits.



## Program

The symposia and technical sessions are scheduled for the 3-day period October 29-31. Symposia include: Triassic-Jurassic Palynostratigraphy, organized by V. D. Wiggins; Paleozoic Palynology (in collaboration with CIMP), organized by S. R. Jacobson; Quaternary Palynology, organized by L. E. Heusser; Neogene Dinoflagellate Cyst Biostratigraphy, organized by J. H. Wrenn. There will also be a technical session devoted to the palynology of ore deposits, organized by E. I. Robbins. The poster sessions will be held on the first two days of the meeting, October 29-30. Student presentations will be made on the first day, October 29; students are reminded that they may compete for the L. R. Wilson Award. The AASP Executive Committee will meet at 10 a.m. on Tuesday, October 28 and again at 6:15 p.m. on Friday, October 31. All AASP members are invited to attend. The International Federation of Palynological Societies business meeting is scheduled for Thursday, October 30.

## Business Luncheon

The Annual AASP Business Luncheon will be held on Friday, October 31, following the assembly of meeting participants for the group photograph at 12:45 p.m. All participants are urged to attend the luncheon. The agenda for the Business Meeting is as follows:

1. Welcoming remarks
2. Introduction of the Board of Directors
3. Secretary-Treasurer's Reports
4. AASP Foundation Report
5. Managing Editor's Report
6. President's Report
7. Presentation of Awards
8. New business
9. Installation of new President
10. Adjourn

## Field Trip

The one-day field trip scheduled with the meeting will take place on Saturday, November 1 and will be led by the eminent petroleum geologist, G. M. Friedman. The title of the trip is: "Sedimentary Environments in Devonian and Triassic-Jurassic Strata of New Jersey and Eastern New York". The trip will emphasize the many contrasting ancient sedimentary environments, mostly nonmarine and sea-marginal, that occupied this region. Various kinds of plant fossils occur in these strata. At each exposure, lithology, rock-body geometry, sedimentary structures, and fossil content will be examined for the purpose of reconstructing depositional environments. Cost is \$45 per person and includes transportation, the guidebook and lunch. The trip is limited to the first 44 persons who return the field trip fee. Additional post-meeting trips are being organized by L. Heusser and M. Miller (see the announcement of details for the latter elsewhere in this Newsletter).

## Social Activities

The Icebreaker and the Annual Luncheon (see above) are both scheduled to take place at the Milford Plaza Hotel, located at 45th Street and 8th Avenue. The Icebreaker will take place at 6:30 p.m. on Wednesday, October 29.

## Registration

Pre-registration for the meeting must be received on or before October 14, and is \$60 for non-students, \$20 for students. On-site registration will be \$65 for non-students and \$25 for students. The registration fee covers admission to all presentations, admission to the Icebreaker with one free drink, the Group

photograph and one ticket to the Annual Luncheon.

As mentioned previously, the schedule of presentations and registration materials were mailed separately and you should have received them prior to receipt of this Newsletter. If you have not, or if you have questions concerning the meeting, please contact:

Dr. Daniel Habib, Ph.D. Program in Earth and Environmental Sciences, Graduate School of the City University of New York, 33 West 42nd Street, New York, NY 10036.

## ORDOVICIAN-DEVONIAN FIELD TRIP

A second field trip to be held in conjunction with the meeting is being organized by the Chitinozoan Subcommittee of the CIMP. Sections of the fossiliferous Middle Devonian Hamilton Group and Middle-Upper Ordovician Trenton Group will be visited during a 4-day field trip, beginning in New York City, Sunday, November 2 and ending in Rochester, New York, the evening of Wednesday, November 5. Trip participants may make flight arrangements leaving the Rochester Airport for November 6.

Although this is a Chitinozoan Subcommittee field trip, it is open to all interested individuals. Collecting chitinozoans representative of these sections will be emphasized; however, other palynomorph groups are present and the stratigraphy of these classical North American reference sections will be reviewed. Sections in basal, transitional and shelf facies will be examined in the type Trenton area, November 2-3. Several excellent sections have been selected for collecting Trenton chitinozoans.

Dr. Carlton E. Brett, University of Rochester, will lead the Middle Devonian part of the trip. The entire Onondaga Formation, parts of the Marcellus, Skaneateles, Ludlowville and Moscow Formations, the Tully Formation, and the lower part of the Genesee Group will be examined. Collecting palynomorph samples, examining facies relationships, and stratigraphy will be stressed.

Motel costs will average \$20/night/person (rooms shared). Transportation cost will be approximately \$140 per person (based on four people per car). The price range of flights from Rochester to New York City is \$89-\$130. Trip participants are required to make their own flight reservations. Inexpensive restaurants are available along the trip route.

An illustrated AASP field guidebook is being prepared. This trip is limited to 15 participants. The final deadline for registration for this trip is September 15. For further information, contact:

Merrell A. Miller, Amoco Production Company Research Center, P.O. Box 3385, Tulsa, OK 74102.

## 7TH INTERNATIONAL PALYNOLOGICAL CONGRESS

The Palynological and Paleobotanical Association of Australasia, a constituent society of the International Federation of Palynological Societies, is proud to announce the 7th International Palynological Congress will be held at the University of Queensland, Brisbane, Australia in 1988. The Congress sessions will commence on Monday morning, 29 August 1988, and close on Friday evening, 2 September 1988. Field trips lasting 4-8 days will be held in various parts of Australia and New Zealand before and after the technical sessions. There will also be a number of one-day study excursions. In addition to the opening and closing ceremonies, there will be a varied social programme including a Congress dinner and a number of other special events for delegates and accompanying members. You are most cordially invited to attend. This

announcement represents the first circular of the meeting for palynologists residing in North America. At the end of the Newsletter is a form which may be cut out and mailed to the Secretary of the Congress to signify your interest. The Second Circular will be mailed out to all respondents late in 1986.

#### Organizing Committee:

A committee based in Brisbane, Australia, has been formed; present membership includes:

Co-chairmen: Noel de Jersey, Geological Survey of Queensland; Geoffrey Playford, University of Queensland.

Executive Secretary: John Rigby, Geological Survey of Queensland.

Programme Convener: Mary Dettmann, University of Queensland.

Field Trips Convener: John McKellar, Geological Survey of Queensland.

Treasurer: Peter Price, CSR Limited.

The full committee will be listed in the next circular.

#### Enquiries:

All enquiries should be addressed to:

Secretary  
7th International Palynological Congress  
Conventions Department  
G.P.O. Box 489  
Sydney, N.S.W. 2001  
Australia

#### Scientific Programme:

The programme will include the following topics:

Processing methods  
Nomenclatural systems and philosophies  
Quantification and statistical methods  
Data storage and retrieval  
Fine-resolution pollen analysis  
Pollen development and biochemistry  
Evolutionary morpho-trends in palynomorphs  
Palynomorph ultrastructure  
Palaeoecology and palaeoenvironments  
Vegetational and climatic reconstructions  
Origin and diversification of angiosperms  
Precision in stratigraphic palynology  
Microphytoplankton  
Other non-spore/pollen palynomorphs  
Melissopalynology  
Aerobiology and allergen studies  
Maturation, source rock and environmental studies

Suggestions for other topics are most welcome.

#### Call for Papers:

Contributions can be given both as papers and/or posters. Authors reporting on current research are encouraged to consider posters as a preferred means for communication. Authors are requested to communicate the topics of their papers as early as possible. Deadlines will be announced in the Second Circular.

#### Congress Language:

The official language of the Congress will be English.

#### Publications:

A Programme, an Abstracts Volume, and a series of Field Study Guides will be produced for the Congress. Subsequently a volume of refereed papers will be published as the Congress Proceedings.

#### Accommodation:

Participants will be offered accommodation in residential colleges on the University of Queensland Campus. Also motel or downtown hotel accommodation will be available. Details will be advised in the Second Circular.

#### Accompanying Members:

A programme for accompanying members will include cultural and social events in and near Brisbane. Accompanying members will be welcome on study tours. Brisbane will be hosting the International Exposition (Expo 88) at the time of the Congress; the site is easily accessible from the University and downtown areas.

#### Field Trips:

A selection of pre- or post-congress study tours covering many parts of Australia and New Zealand will be available. Full details, including costs, will be provided in the Second Circular. Many tours may be included as stopovers by international visitors.

1. Atherton Tableland, near Cairns, rainforest, eucalyptus forest, swamp deposits. Northern Great Barrier Reef, coral islands and research stations. 1 week.
2. Heron Island resort/research station, southern Great Barrier Reef. Coral reef fauna and flora, including phytoplankton. 5 days.
3. The Central Queensland oil, gas and coalfield sediments. Palynologically productive exposures of Permian to Early Cretaceous age; modern inland forest floras. Pre-Congress only. 7 days.
4. New Zealand. Both islands. Tertiary and Quaternary stratigraphy, present-day flora. 6 days.
5. South Australia and Victoria. Visits to the classical Cookson localities, Mesozoic and Tertiary stratigraphy, present-day flora. Post-Congress only. 8 days.
6. Central Australia, Ayers Rock, arid floras; Western Australia, Shark Bay and living stromatolites, flora, Permian stratigraphy. 8 days.

#### Other Meetings:

The International Organization of Palaeobotany (IOP) will be holding its Conference in Melbourne during the week preceding IPC. The International Geographical Conference (IGC) will be held in Sydney prior to IPC.

#### Second and Third Circulars:

A second circular is planned for November 1986. It will be sent to those responding to this circular, and will contain detailed instructions to authors, tentative schedule of sessions, deadlines for papers and poster contributions, estimates of costs for Congress registration, accommodation and excursions. A third circular with registration forms and final cost estimates is planned for November 1987.

#### Please Note:

The Organizing Committee will do everything possible to make your visit to the Congress a memorable and happy event. The organizers regret that the Congress does not have funds to support sponsorship, travel or accommodation of delegates whilst in Australia or New Zealand, nor for national or international travel to or from the Congress.

Once again, all persons interested should respond using the cut-out for appearing at the end of this Newsletter. Please airmail your response to the Secretary of the Congress at the address listed above:

#### MEETING ANNOUNCEMENT

A meeting titled "Micropalaeontology, Palynology and Petroleum Exploration, On- and Offshore Europe" will be held in Aberdeen, Scotland, April 2-3, 1987. The meeting is being organized under the joint auspices of the British Micropalaeontological Society and the Petroleum Group of the Geological Society of London. A full set of information and registration forms will be sent out with the September newsletter of the Geological Society and the Autumn circular of the BMS. Persons interested in attending and submitting papers should refer to these newsletters or write:

Mrs. J. Lister or Dr. D. J. Batten, Department of Geology and Mineralogy, Marischal College, Aberdeen University, Aberdeen AB9 1AS, U.K.

#### TRADE INFORMATION AVAILABLE

The International Trade Council has informed AASP that all members of the Association may obtain free copies of the Latin-American Import Export Directory (English-Spanish Edition). This 4th edition (1986) of the directory consists of two volumes of 480 pages each and includes information on 18 Latin American countries. More than 22,500 companies have been listed in alphabetical order and classified by product, which allows an easy location for exporters and importers. Persons interested in obtaining the Directory should write:

International Trade Council, P.O. Box 73 Centro Colon, San Jose 1007, Costa Rica.

#### PUBLICATION AVAILABLE

The Iowa Geological Survey announces the publication of "Palynostratigraphy of the Lower and Middle Pennsylvanian coals of Iowa," IGS Technical Paper 7, by R. L. Ravn (1986). This report is 245 pages long, with 40 photographic plates and includes taxonomic and stratigraphic information on the occurrences of more than 300 palynomorph species. It is available at a cost of \$10 (U.S.) + \$1.50 postage. Persons interested in purchasing the paper should write:

Raymond R. Anderson, Chief, Stratigraphy and Economic Geology, Iowa Geological Survey, 123 N. Capitol St., Iowa City, IA 52242.

#### BOOK REVIEWS

Pollen Records of Late-Quaternary North American Sediments, edited by Vaughn M. Bryant, Jr., and Richard G. Holloway. American Association of Stratigraphic Palynologists Foundation, 1985, xiii + 426 pp., \$35.00.

This volume of papers reviewing late Quaternary pollen records of North America is another of the several recent summaries of late Pleistocene and Holocene palynology of the United States and Canada. However, it is quite different from the rest and one that is designed to be used as a reference. The editors, Vaughn Bryant and Richard Holloway, asked the authors to write comprehensive reviews of their assigned geographical areas rather than contributions on their research. The completed volume thus provides both palynologist and non-palynologist with a summary of the current North American late Quaternary paleovegetation by region rather than by research area. This difference will be readily appreciated by users.

In keeping with the summary nature of the volume, many chapters also contain a comprehensive bibliography to the palynological literature of their area that is separate from the standard literature cited section. This bibliography adds immensely to the usefulness of the volume, especially for the student and those from other major Quaternary disciplines such as archeology, paleobiology, and geology. As the editors note in the preface, the idea for this volume grew out of frustrations encountered in teaching and the desire to have a single geographical summary of the paleovegetation information and literature.

The book comprises 14 chapters by 17 authors, each covering a separate geographical region; a 15th chapter is a bibliography of 548 published and unpublished contributions on Quaternary pollen records of the American Southwest by Stephen A. Hall. The following geographical regions and authors are included: The Southeastern United States (H. E. Delcourt and P. A. Delcourt), Texas (Bryant and Holloway), Southwestern Mexico (R. B. Brown), the American Southwest (S. A. Hall), California (D. P. Adam), the Pacific Northwest Coast (C. J. Heusser), the Pacific Northwest Interior and Northern Great Basin (P. J. Mehringer, Jr.), the Great Plains and Central United States (R. G. Baker and K. Waln), the Great Lakes (Bryant and Holloway), the Northeastern United States (D. C. Gaudreau and T. Webb III), Eastern Canada (T. W. Anderson), Western Canada (J. C. Ritchie), Alaska (T. A. Ager and L. B. Brubaker), and marine Quaternary palynological records (L. E. Heusser).

In each chapter the author(s) provides an outline of the late Quaternary palynology of the respective areas with a discussion of the major sites and pollen records, noting important events and dates. This approach makes the volume truly a reference and not just another set of independent contributions. The treatment of each area varies depending on the amount of data available, the authors' preferences, and where one chooses to define the beginning of the "late Quaternary". Most chose to begin with the Wisconsinan full-glacial about 25,000 years BP. I personally would have preferred to see data on earlier portions of the Wisconsinan and perhaps even the Sangamonian and Illinoian included, but that is a matter of my own individual research interests.

Knut Faegri sets the tone in the foreword when he writes that "Taking stock of the past is the fundament of the future." Quaternary palynology's greatest contribution is its ability to chronicle vegetation history and climatic change within the terrestrial biosphere. Recognition of environmental change as a continuing process is a reality that palynology helped establish. The contribution that we as students of Quaternary vegetation can make is to point where we have been so that we may know where we are going. Perhaps then man will be able to understand change and how best to accommodate it. With the strong interest in late Quaternary paleoenvironments in both the Old and New Worlds, Bryant and Holloway have provided a much needed reference.

The book may be ordered from Robert T. Clarke, Treasurer, AASP Foundation, c/o Mobil Research & Development Corp., P.O. Box 819047, Dallas, TX 75381-9047. Make checks payable to the AASP Foundation.

James E. King, Illinois State Museum, Springfield, IL.

Sporopollenin Dinoflagellate Cysts, Their Morphology and Interpretation, by William R. Evitt. AASP Foundation, 1985, 333 pp., 93 figs., \$30.00.

This is a great reference text; it clearly defines and amply illustrates the numerous morphological terms and concepts found in the dinoflagellate literature. Cysts composed of sporopollenin constitute the majority of fossil dinoflagellates so this work needs little supplement to be exhaustive. Neontologists and palynologists will find the book both useful and stimulating.

The book is based on a series of instructional sessions which is reflected in the explicit, yet informal and highly readable style of writing. It is organized into three parts. Part I is concerned with dinoflagellates in general and contains two chapters. The first deals with modern dinoflagellates and reviews terminology, life cycles, cysts, and classification. Chapter 2 includes a historical review and a thoughtful presentation of the selectivity of the fossil record. Factors such as cyst size, shape and composition, sediment type, postdepositional history, cyst production by only certain groups, gaps in the fossil record, a poor freshwater deposit record, and the ambiguity of acritarchs make it difficult to draw decisive evolutionary conclusions.

Part II concerns the morphology of the cyst and includes four chapters. These chapters discuss general features, wall characteristics (layers, relief, development), tabulation and paratabulation (peridinioid and gonyaulacoid patterns), and the archeopyle (structure, terminology, and a survey of types). The chapter on the archeopyle gives Evitt the opportunity to review and synthesize the elaborations of his original term (Evitt, 1961).

Part III is the interpretation of the cyst. It contains seven chapters; the first two are introductory, the middle four deal with specific cyst types, and the last is a consideration of classifications and evolution. The chapter on Guides to Interpretation is excellent; it guides the reader through major principles underlying interpretation of what is seen. Each principle is concisely stated, then followed by possible consequences and a discussion. Some of the 15 principles include: Selective representation, spherical concealment, coordinated displacement, triple junctions, interdependent properties, simplest solutions, and extent of variability. The chapters on cyst types (P-cysts, G-cysts and other types) include a review of cyst categories and complexes, keys, and related comments. In the last chapter Evitt reviews some major classification and evolutionary proposals. Unfortunately, he chooses only to comment on the ideas of others, and makes no proposals himself. I would have enjoyed reading some of his "wilder notions".

The areas for possible improvement of this book are few. Other than the frontispiece, there are no photographs. While photographs would probably add to the cost of the book, a few would be a valuable comparison to the line drawings. Anyone working with dinoflagellate cells knows how different they can look when compared to line drawings. I also found some areas where other interpretations are more accepted, e.g., five cingular plates in *Peridinium* s. s. (Boltovskoy, 1975), sulcal notation (Balech, 1974), and two antapical, no posterior intercalary plates in *Gonyaulax* (Balech, 1980).

The book is well referenced with up-to-date citations. Figure legends are self-explanatory and allow rapid examination for desired information. There are both Taxonomic and Subject Indices. The reasonable cost is another plus.

In summary, this is a valuable resource for investigators of modern and fossil dinoflagellates. Excellent illustrations facilitate understanding of concepts and comparison of examples. The emphasis on fossil cyst features, which should appeal to stratigraphic palynologists, is balanced by references to modern thecal arrangements.

#### References Cited

- Balech, E. 1974. El género *Protoperidinium* Bergh, 1881 (*Peridinium* Ehrenberg, 1831, partim). Rev. Mus. Argent. Cienc. Nat. "Bernardino Rivadavia" Inst. nac. Invest. Cienc. Nat., 4: 1-79.
- Balech, E. 1980. On thecal morphology of dinoflagellates with special emphasis on cingular and sulcal plates. An. Centro Cienc. del Mar y Limnol., Univ. Nal. auton. Mexico, 7: 57-68.
- Boltovskoy, A. 1975. Estructura y estereoultraestructura tecal de Dinoflagelados. II. *Peridinium cinctum* (Muller) Ehrenberg. Physis, sec. B, 34: 73-84.
- Evitt, W. R. 1961. Observations on the morphology of fossil dinoflagellates. Micropaleontology, 7: 385-420.

Susan Carty, Department of Biology, Texas A&M University, College Station, TX.

#### POSITIONS AVAILABLE

The U.S. Geological Survey, Geologic Division, Branch of Paleontology and Stratigraphy, announces a vacancy for a research geologist in Quaternary palynology and paleoclimatology. Duties include paleoclimatic and paleoenvironmental investigations and original research involving Quaternary pollen, spores, and acid-resistant algae and plant macrofossil remains from lake sediments and pack-rat middens within and surrounding the Great Basin region. The position will be located in Denver, Colorado. Applicants should have Ph.D. in geology or equivalent experience and must be U.S. citizens. Anticipate that the position will be at the GS-12 (\$31,619-41,105) level. For further information, contact J. Platt Bradbury, U.S. Geological Survey, Denver Federal Center, M.S. 919, Box 25046, Denver, CO 80225. Phone: (303) 236-5666. Application must include Standard Form 171 (SF-171), Personal Qualification statement, available from above address or any federal personnel office. Application must be received by J. P. Bradbury by Sept. 15, 1986. The U.S.G.S. is an equal-opportunity employer.

Quaternary research group studying the sedimentology and history of fresh and saline lakes of central Canada invites applications for a postdoctoral fellowship. Expertise in palynology required; diatom expertise desirable. Send vita and names of three referees by October 10, 1986, to J. T. Teller, Department of Geological Sciences, University of Manitoba, Winnipeg, Manitoba, R3T 2N2, Canada.



# AASP NEWSLETTER TECHNICAL SECTION

## THE ARCHEOPYLE TYPE OF *BOHAIDINA* JIABO, 1978 AND *PARABOHAIDINA* JIABO, 1978

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The work by Sung, Zhishen et al. (Jiabo, 1978) represents the first significant publication on fossil dinoflagellates from China. 36 genera and 142 species were described, most of which were considered to be dinoflagellates, although acritarchs were also included. Amongst the dinoflagellates, few were reported to have distinct archeopyles. Thanks to continued investigations by palynologists working on material from the Bohai oilfields, knowledge of these dinoflagellates has improved, and some taxonomic revisions are now being prepared by Chou Heyi, Xu Jinli and Mao Shaozhi.

Jiabo (1978, p. 37, text-fig. 5) erected the genus *Bohaidina* for dinoflagellates with polyhedral cysts with a rhombic ambitus. There were no indications of furros or an endoblast, but 1-2 equatorial folds, delineating an equatorial zone which simulates a cingulum, and two equatorial projections, one at each end of this zone, are always present. Ornament, where present, is of low relief. *Parabohaidina* was described by Jiabo as closely resembling *Bohaidina* but lacking the two equatorial projections. For both *Bohaidina* and *Parabohaidina*, Jiabo reported that no archeopyle was known.

In 1984, I observed two specimens of *Parabohaidina* from the Bohai region in which a type 3I intercalary archeopyle appeared to be formed, as in *Trithyrodinium*. Subsequently, Xu Jinli (personal communication) discovered numerous specimens of *Bohaidina* which showed distinct indications of an archeopyle (Fig. 1). The archeopyle involves all three intercalary plates, which are separated from each other by accessory archeopyles and sometimes attached posteriorly to the precingular plates, and the apical series, which are isolated by accessory archeopyle sutures from the former but attached ventrally to the precingular plates. In addition, the apical series fall ventralward when seen in lateral view. Thus, the archeopyle is of combination type Aa+3Ia or Aa+3I. This is a similar archeopyle type to that described for the "Type B" cysts of Norris and McAndrews (1970) from the latest postglacial mud of Glatsch Lake, Minnesota.

It is probable that *Bohaidina* and *Parabohaidina* have the same type of archeopyle. Moreover, this type of archeopyle was also found not long ago in other genera belonging to the Bohaidiniaceae by Xu Jinli (personal communication). These facts show that the Bohaidiniaceae is indeed a distinct and independent family.

## References Cited

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- NORRIS, G., and McANDREWS, J. H. 1970. Dinoflagellate cysts from post-glacial lake muds, Minnesota (U.S.A.). Review of Palaeobotany and Palynology, 10: 131-156.
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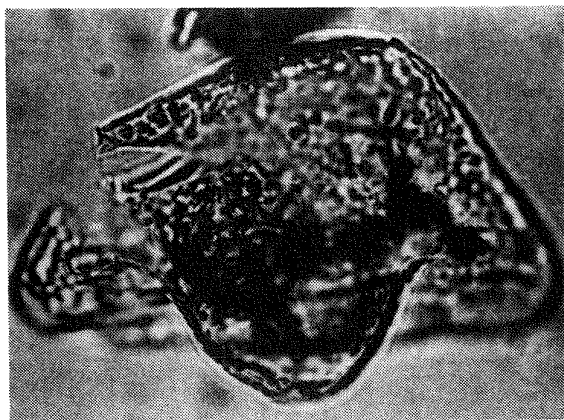


Figure 1. *Bohaidina* sp., showing archeopyle development.

