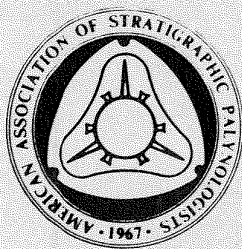


**APRIL, 1987**  
**VOLUME 20, NUMBER 2**

The President's Message .....	1
Mid-Year Meeting Report .....	1
AASP Candidates for Office .....	2
Current Research .....	4
Position Wanted .....	5
General Announcements .....	5
Meetings of Interest .....	6
Meet the 1987 AASP Officers .....	7
In Memoriam .....	9
Upcoming Presentations by AASP Members .....	11
Book Reviews .....	11
For Your Bookshelf .....	14

**AASP NEWSLETTER**  
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## Membership Application Form

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

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Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

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

Send to: Dr. Gordon D. Wood  
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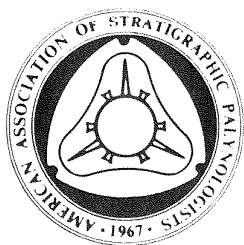
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Name change: \_\_\_\_\_  
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Address change: \_\_\_\_\_  
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Telephone change: \_\_\_\_\_

Send to: Dr. Gordon D. Wood  
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Houston, TX 77253 U.S.A.



# AASP NEWSLETTER

VOLUME 20, NUMBER 2 APRIL, 1987

J. H. WRENN, EDITOR ISSN 0732-6041

## PRESIDENT'S MESSAGE

The mid-year meeting of the Board of Directors of AASP Inc. was held in Houston at the Westin Oaks Hotel on April 2 and 3. This hotel and surrounding complex, considerably expanded since the 1975 AASP Annual Meeting, will provide an excellent setting for the 1988 Annual Meeting.

Details of the Board Meeting will be found elsewhere in this Newsletter; however, I would like to mention a couple of items which should be of interest to you all.

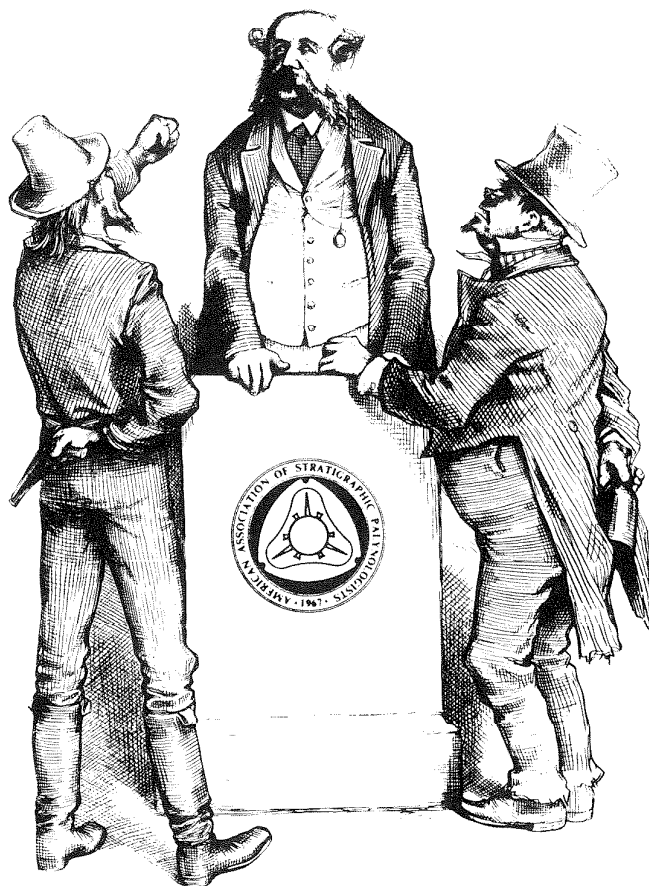
Future meeting sites were selected for 1989 (Tulsa, OK), 1990 (Banff, Alberta, Canada), and 1991 (New Orleans, LA).

A substantial number of individual (143) and institutional (11) members were dropped from the rolls due to non-payment of dues for 1985 and 1986. An even greater number of members (10 individual/46 institutional) are in arrears for 1987. I'm sure that this is just oversight on the part of most folks, but dues are payable on January 1. Please, if you haven't paid your dues, send a check now and continue supporting one of the best scientific bargains around.

The new Membership Directory should be in everyone's hands by now. I thank Steve Dittrich and Shell Offshore, Inc. (New Orleans) for putting the directory together and sending it out. Although a few minor problems and old addresses linger on in the directory, it is as up-to-date as possible. We have received some comment about addresses being out of date, but remember, it is each member's responsibility to inform the Secretary-Treasurer about address and job changes. If you keep us (your officers and board members) informed, we'll do our best to keep you all informed. If you do not notify us about your address change, we can only assume the address we have is correct!

Volunteers to do the next directory would be welcomed. You may contact me or Gordon Wood at any time in the near future to volunteer your services. See you all in Halifax.

Don C. Benson, Jr.  
President, AASP, Inc.



## REPORT ON THE MID-YEAR MEETING OF THE AASP BOARD OF DIRECTORS

The mid-year meeting of the AASP Board of Directors was held at the Westin Oaks Hotel in Houston, Texas, on April 2-3, 1987. President Don Benson convened the meeting. Board members present were Norman Frederiksen, President-Elect; Gordon Wood, Secretary-Treasurer; Douglas Nichols, Managing Editor; and William Cornell, Patricia Gensel, David Goodman, and Barbara Whitney, Directors-at-Large. Also attending were Vaughn Bryant, Robert Clarke, John Clendening, Daniel Habib, and Virgil Wiggins, each of whom had reports to present. The agenda for the meeting was essentially the same as that published in the last issue of the AASP Newsletter (vol. 20, no. 1).

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



The mid-year Membership Report presented by Gordon Wood showed a total of 1,073 AASP members, including 940 individuals, through March 31 of this year. Distressingly, 510 members were listed in arrears. Of these, 154 have not paid their dues since 1985. In accordance with the bylaws, these members were dropped from the roster. The remaining 356 are in arrears for 1987 only, and will be carried for the time being. Members in arrears will continue to receive AASP Newsletter, but the journal Palynology will not be sent to them. Letters will be sent urging these individuals and institutions to pay their dues.

The large number of members currently in arrears, one-third of the total membership, was of great concern to the Board. It is assumed that difficult times in the oil industry and geologic professions in general are responsible for much of the problem. On a brighter note, the report listed 17 new members since October 1986. A new Membership Directory has just been distributed, but it may be partially out of date already because of the rapidly changing circumstances of many members.

The Treasurer's Report presented by Gordon Wood showed AASP's assets to be \$43,229.95 as of March 31, 1987. Contributions to the AASP Scholarship Fund have amounted to \$476.00 since October 1986. The endowment for the L. R. Wilson Best Student Paper Award is still earning interest at 11.79%. Thus AASP appears to be quite healthy financially, but Gordon reminded the Board that a substantial amount of the money in the bank represents dues payments made in advance, funds that must be reserved for future years.

The Managing Editor's Report presented by Doug Nichols included an update on the status of Volume 11 of Palynology. Six manuscripts have been reviewed and accepted; these will fill about half the volume. Ten other manuscripts have been submitted that are in various states of review or revision. Many of these also will be published in 1987, but just which ones will depend upon space available and when final revisions are received.

The relationship of Palynology, which publishes reviewed articles on original research, to the AASP Newsletter Technical Section, which publishes unreviewed short notes and scientific commentary, was reaffirmed by the Managing Editor with the Board's concurrence.

In addition to the Managing Editor, members of the AASP Editorial Staff (officially the Publications Committee) are Dave Goodman, Journal Editor; John Wrenn, Newsletter Editor; Reed Wicander, Book Review Editor; and Leonard "Rip" Ford, a newly appointed Assistant Editor.

The AASP Foundation Report presented by AASP Foundation Trustee Bob Clarke showed that the Foundation had assets of \$31,902.07 as of March 31, 1986. Handsome mugs bearing the AASP logo, which were displayed at the meeting, will be offered as premiums to individuals who join the Century Club. Two more numbers in the AASP Contributions Series are close to being in press and will be published in 1987. The Contributions Series editor is now Foundation Trustee Richard Hedlund.

Reports on annual meetings, past and future, were presented by several individuals. Dan Habib submitted the final report on the 1986 meeting held in New York. Registration totaled 153, and 35 attended the field trip. The bottom line was \$1,110.77 in the black, largely due to solicited sponsorship of the meeting by Queens College, Brooklyn College, the City University of New York, the Northeast Science Foundation, and Micropaleontology Press.

A report by Sedley Barss on preparations for the 1987 Annual Meeting was presented by Don Benson. The meeting is to be

held in Halifax, Nova Scotia; the dates are October 7-10. A tentative program, call for papers, and abstract form have been mailed to members. The scientific and social events scheduled promise to be excellent. Plans for the 1988 Annual Meeting were presented by Vaughn Bryant. This meeting is scheduled for November 9-11, 1988, in Houston, Texas, at the Westin Oaks Hotel. Details are still in the formative stage.

Proposals for Annual Meetings post-1988 were presented by Don Benson. An invitation from CIMP President Bernard Owens to hold a meeting in Sheffield, England, was regrettably turned down. The Board reasoned that although the venue was indeed attractive, it would most likely be quite difficult for North American members of AASP to travel overseas for a meeting, in view of widespread fiscal constraints. The Board reviewed and finally accepted proposals for future meetings, as follows: Tulsa, Oklahoma (1989); Banff, Alberta (1990); New Orleans, Louisiana (1991).

Other committee reports were presented, the most important of which was that of the Nominating Committee. The slate of nominees for AASP offices is published elsewhere in this issue of the Newsletter. Don Benson presented a brief President's Report that largely concerned correspondence recently received from members. The meeting adjourned in time for Board members to join Houston area palynologists at their informal monthly luncheon, a seafood buffet.

**Douglas J. Nichols**  
Managing Editor, AASP

## AASP CANDIDATES FOR OFFICE

John A. Clendening and the 1987 Nominating Committee (Sarah P. Damassa, Stephen R. Jacobson, Harold V. Kaska and John H. Wrenn) have assembled a very strong slate of candidates to stand for election. Ballots will be sent out to members by the Ballot Committee by July 1. The completed ballots will have to be returned to the Ballot Committee Chairman, Richard P. Curry, by August 15 in order to be counted. The officers you elect will determine the direction AASP follows, so consider the candidates with great care and **VOTE!**

### PRESIDENT-ELECT CANDIDATES

**Daniel Habib**



Dan joined AASP in 1969 and served as a Director-at-Large in 1970. He has served as Chairman of the Ballot Committee, and was Chairman of the Organizing Committee of the 1986 AASP Annual Meeting in New York City.

Dan is a member of the Geological Society of America, the North American Micropaleontological Society and the Society for Organic Petrology. He was

the organizer of a dinoflagellate session at the Second Planktonic Conference, 1970, Rome, Italy, and served on the editorial board of Micropaleontology until 1982.

Dan has worked as a Research Geologist, State Geological Survey of Kansas (1965-66); Visiting Research Associate, Lamont-Doherty Geological Observatory (1966-77); Departmental Chairman, Queens College (1972-80); Executive Officer, Ph.D. Program in Earth and Environmental Sciences, City University of New York (1982-present).

## Harry Leffingwell

Harry joined AASP in 1968. He was Vice President during 1972-73. Harry has served

AASP in numerous capacities, including: Chairman, Committee of International Affairs, 1972-73; Member Committee of International Affairs, 1973-74; Technical Chairman, 1973 AASP Annual Meeting Committee, Anaheim, Calif.; Chairman, Nominating Committee, 1978; Chairman, Awards Committee, 1982-84; Chairman, Chair-in-Palynology Committee, 1983-85. In

addition, he has served as a member of various committees.

Harry is a member of the American Association of Petroleum Geologists, Pacific Section of the Society of Economic Paleontologists and Mineralogists, Paleontological Association, Paleobotanical Association, Botanical Society of America, Paleontological Research Institution and the CIMP. He has been a member of the Board of Trustees of the Paleontological Research Institution. Harry is the Supervisor of Biostratigraphy at the Fred L. Hartlet Research Center of UNOCAL in Brea, California.



## SECRETARY-TREASURER CANDIDATE

### Gordon D. Wood



Gordon joined AASP in 1969 and is the incumbent Secretary-Treasurer. He was Chairman of the 1985 AASP Nominating Committee.

Gordon is a member of the Society for Organic Petrology, Paleontological Society, Society of Economic Paleontologists and Mineralogists and of the American Association of Petroleum Geologists. He has been the recipient of a Sigma Xi

Research Award and Delta Theta Mu and Phi Kappa Phi Scholarastic honors. Gordon is a Project Paleontologist with Amoco Production Company in Houston, Texas.

## MANAGING EDITOR CANDIDATE

### David K. Goodman

Dave became a member of AASP in 1975 and is presently a Director-at-Large. He served as the Assistant Journal Editor (1985-86) and the Journal Editor (1986). He was a member of the L. R. Wilson Best Student Paper Award Committee, 1981.

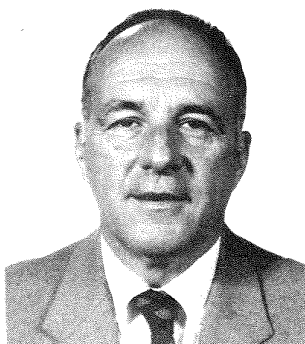
Dave is a member of the Paleontological Society, Society of Systematic Zoology, Sigma Xi, Society of Economic Paleontologists and Mineralogists, British Micropaleontological Society, the



Paleontological Association and the International Society for Evolutionary Protistology. Dave is Principal Research Paleontologist at the ARCO Oil and Gas Company Research Center in Plano, Texas.

## DIRECTOR-AT-LARGE CANDIDATES

### Harold V. Kaska



Harold joined AASP in 1972. He was Chairman of the 1983 AASP Annual Meeting Committee (San Francisco) and the AASP Annual Meeting Guidelines Committee. He has been a member of the Nominating Committee numerous times and has served as the AASP Delegate and Councilor to the International Federation of Palynological Societies. Harold is familiar with AASP, Inc., its purposes, administration and procedures,

having attended (ex-officio) numerous Executive Committee Meetings ("to keep my eye on the Board of Directors"). He is a member of the AASP Foundation Century Club.

Harold is a member of the American Association of Petroleum Geologists, the American Institute of Professional Geologists (CPG-188), the Swiss Geological Society, British Micropaleontological Society, Paleontological Association, the Society for Organic Petrology and California Regional Geologists.

### Robert Ravn

Bob joined AASP in 1980 and was co-editor of the Abstracts volume for the 1981 AASP Annual Meeting in New Orleans. He was the Newsletter editor from 1984 to 1986.

Bob's research interests are concentrated upon Cretaceous and Carboniferous non-marine palynomorphs. He belongs to the American Association of Petroleum Geologists, the Paleontological Society and the British Micropaleontological Society. Bob is employed by Standard Oil Production Company in Dallas, Texas.

(No photograph available.)

### Loretta S. Satchell



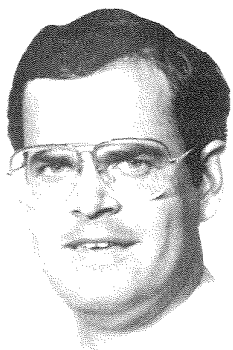
Loretta joined the AASP in 1981 and was promptly awarded the L. R. Wilson Best Student Paper Award. She was, in fact, the first recipient of that award. She served on the 1986 Nominating Committee and has been a reviewer for PALYNOLOGY. Loretta's interest in AASP has led her to attend various Executive Committee Meetings.

Loretta is a member of the British Micropaleontological Society, Sigma Xi, Paleontological Society and the Society for Organic Petrology. She was the 1985 Program Chairman of the Annual Meeting for the Society for Organic Petrology. Loretta is a palynologist with Exxon Company U.S.A. in Houston, Texas.

## Jeffrey A. Stein

Jeff joined AASP in 1979. He was a member of the 1981 AASP Annual Meeting Committee (New Orleans) and has served twice (1982 and 1985) on the Nominating Committee. He is a co-editor of the AASP Contributions Series No. 17.

Jeff earned a Ph.D. from Stanford University. He was temporarily employed by the U.S. Geological Survey in Denver before being hired by Amoco Production Company (in 1979) and assigned to the Paleontology Staff in the New Orleans Regional Exploration Office. Jeff was transferred to Amoco's Tulsa Research Center in 1985 where he is now a technical supervisor and research scientist. His main research interests are Cretaceous/Tertiary palynology, with a definite positive bias toward dinoflagellate cysts.



## WRITE-IN CANDIDATES

According to the Revised Bylaws of the AASP, Inc. (March 16, 1985), any member in good standing can propose additional nominations for the Board of Directors. According to:

Article 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.

## CURRENT RESEARCH

This issue inaugurates a column in which AASP members can present summary reports on their current research. This column was inspired by the "Research Reports" included by Editor A. D. McCracken in the Paleontology Division Newsletter of the Geological Association of Canada (see the summary of this newsletter under "General Announcements").

Reports on university and governmental departments should summarize all of the active research at that institution. These reports can include recent publications and presentations that have resulted from the research. The format used by Dick Baker in the report that follows is a good example.

## UNIVERSITY OF IOWA, Iowa City, Iowa

Dick Baker continues to work on Late Quaternary palynology and plant macrofossil analysis in Iowa and adjacent areas. Papers with various collaborators are in progress on ice-marginal environments in Iowa and Illinois. These include work documenting a reference section for Mid- to Late Wisconsinan environments at Biggsville, western Illinois, a detailed record of Mid-Wisconsinan peatland evolution at Biggsville, and a summary papers on paleoenvironments from several sites in Iowa and Illinois. Another study involves the changes in peatland character at Nichols Marsh in southeastern Iowa during the late Holocene. Work is still in progress on pollen and plant macrofossils from an interglacial site south of Des Moines, Iowa.

Recently graduated Amy Sullivan worked on part of the Biggsville section for her MS degree, and received AASP's best student paper award for her presentation at the 1985

Annual Meeting in El Paso, Texas. She is now employed by Mobil in Dallas.

Another recent graduate, Hyung Kim, received his PhD degree and has returned to Korea to teach. His dissertation was on late-glacial and Holocene palynology in northern and central Iowa.

Dick is working with PhD student Craig Chumbley on pollen and plant macrofossils from alluvial and floodplain-pond sediments in northeastern Iowa. This study promises to fill a large gap in records because the area is within the Paleozoic Plateau (so-called "Driftless Area"), where few sequences exist.

PhD student Kirk Waln is working on Eocene palynology of sediments in Washington and Oregon. He expects to finish within the next year.

PhD student Curt Klug is working on the biostratigraphy of palynomorphs and conodonts from Devonian sediments in Iowa.

Brenda Nations is finishing her M.S. thesis on Miocene pollen and spores from southern China.

## SELECTED PUBLICATIONS

Baker, R. G., 1986. Sangamonian (?) and Wisconsinan paleoenvironments in Yellowstone National Park. *Geological Society of America Bulletin* 97:717-736.

Baker, R. G., Rhodes, R. S., II, Schwert, D. P., Ashworth, A. C., Frest, T. J., Hallberg, G. R. and Janssens, J. A., 1986. A Full-Glacial Biota from southeastern Iowa, USA. *Journal of Quaternary Science* 1:91-107.

Baker, R. G. and Sullivan, A. E., 1986. Paleobotanical records from Biggsville and Wedron, Illinois: Environments during the Woodfordian ice advance. In: *Quaternary Records of Central and Northern Illinois* (Folmer, L. R., McKenna, D. P. and King, J. E., Eds.) Field Guide, American Quaternary Association, Ninth Binational Meeting, University of Illinois, Urbana, p. 68-69.

Baker, R. G., and Waln, K. A., 1985. Pollen Records from the Great Plains and Central United States, Chapter 8. In: *Pollen Records of Late-Quaternary North American Sediments* (Bryant, V. M., Jr., and Holloway, R. G., Eds.) The American Association of Stratigraphic Palynologists Foundation, p. 191-203.

Baker, R. G., Horton, D. G., Kim H. K., Pusateri, W. P., Roosa, D. M., Sullivan, A. E. and Witinok, P. M., in press, Late Holocene paleoecology and the development of riparian marsh vegetation near Nichols, Muscatine County, Iowa. *Proceedings of the Iowa Academy of Science*.

## QUEENS COLLEGE, Flushing, New York

Dan Habib is using organic facies changes and variations in dinoflagellate cyst species abundance to interpret depositional environments related to transgressions, regressions and relative sea level. The results of his studies in the Upper Cretaceous sediments of the Atlantic Coastal Plain are applicable to deep sea deposits of the North Atlantic Ocean.

The graduate student community is very busy studying a wide range of palynological projects. Robert van Pelt is studying the dinoflagellate stratigraphy, dinoflagellate species richness/heterogeneity and organic facies in the Twin Creek Limestone of the Idaho/Wyoming area. Bob is correlating his stratigraphy with evidence of transgression and regression.

Yoram Eshet is completing his dissertation on the palynozonation and correlation of the subsurface Permo-Triassic of Israel. Yoram has shown an interesting correlation from the north to the south in different facies.

Martha Mixon is studying the dinoflagellate stratigraphy of the Callovian, Oxfordian, Kimmeridgian, and Tithonian deposits of the western North Atlantic.

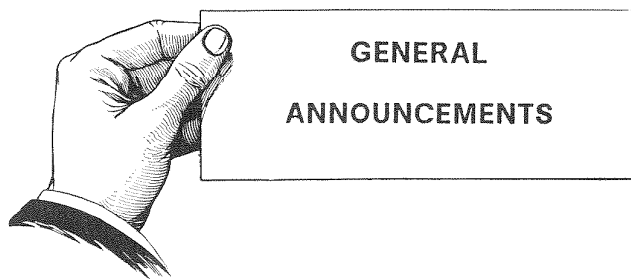
Cynthia Kramer has begun a study of the dinoflagellate stratigraphy of the Maestrichtian-Danian at a number of Deep Sea Drilling Project Sites (some with the iridium-anomaly K/T boundary definition, some without). She will also be studying the change in organic facies across the boundary.

This summer, Huan Li will begin his study of the dinoflagellate stratigraphy of the Cenomanian/Turonian Boundary Event (CTBE) black shales from the Cretaceous of the Western Interior.

## POSITION WANTED

The Newsletter is beginning a new column to assist our members who are seeking employment. If you are an AASP member looking for employment, send a brief summary (*full resumes and vitae will not be accepted*) of your qualifications and experience. This should include your university degrees, palynological specialties, work experience, familiarity with particular parts of the geologic column or geographic areas and your name and address. If you wish to remain anonymous, this Editor will code your entry and forward to you (*please include a self-addressed stamped envelope*) any inquiries about your notice that are received. Please do not send a long résumé, you may not agree with my severe editing of your life. So edit to your taste and send the brief summary to:

John H. Wrenn  
AASP Newsletter Editor  
Amoco Production Company  
P. O. Box 3385  
Tulsa, OK 74102



## ADDRESS CHANGES

No industry in the United States has ever suffered such a profound shaking in so short a time as the petroleum industry has recently gone (is going?) through. Tens-of-thousands of people have lost their jobs, been retired early, or transferred around the world, as well as within the U.S. Many of these people are, or were, palynologists.

It is impossible for AASP to keep track of the numerous and frequent address changes of its members if those members do not inform the Secretary-Treasurer of AASP. On the reverse of the Newsletter cover are two forms: one is a membership application, the other is for reporting address

changes to AASP. Please fill out the address change form if you have moved or are about to move, and mail it expeditiously to the Secretary-Treasurer, as indicated on the form.

## TARDY MEMBERSHIP DUES

Secretary-Treasurer Gordon D. Wood will be mailing notices to members who have yet to pay their 1987 AASP dues. Only one notice will be sent to each of the 356 members whose dues are in arrears. These letters will be sent out in late April or early May.

## IMPORTANT PALEONTOLOGY NEWSLETTER FROM CANADA

The Paleontology Division of the Geological Association of Canada has recently released the fall edition of its newsletter. Membership in GAC is a requisite for joining its Paleontology Division. Nonmembers with an interest in biostratigraphy or paleontology are encouraged to join the GAC and the Division, but alternatively may subscribe to the newsletter. The newsletter reports after the fall meeting of the annual Canadian Paleontology and Biostratigraphy Seminar, and before the annual meeting of the GAC in the spring.

The fall issue contains news on research by over 110 paleontologists from 20 institutions (e.g., Tertiary dinosaurs, geochemical studies, limnology, Cretaceous molluscs, Ordovician lithofacies, conodonts, stromatoporoids, ammonite paleogeography, paleontomology, Labrador Shelf/Grand Banks zonation, palynology, foraminifers, evolution of wings in insects, radiolarian biostratigraphy, Silurian brachiopods, reefs, trace fossils, fish, mammals, paleontology of Athabasca Oil Sands, Cretaceous-Tertiary plants, trilobites and graptolites). Many contributors included lists of their recent and forthcoming publications. This newsletter also includes a report on database programs for paleontologists, reports and announcements of meetings, and recent and forthcoming publications.

The newsletter is provided free of charge to members of the Paleontology Division of the GAC. Members of GAC may join the Paleontology Division by sending \$5.00 (annual division dues) to GAC. (Cheque payable to the Geological Association of Canada, Department of Earth Sciences, Memorial University of Newfoundland, St. John's, Newfoundland A1B 3X5.)

Readers who are not members of the GAC but wish to receive the newsletter should send a cheque or money order (payable to Paleontology Division - GAC) for \$7.00 to the Secretary-Treasurer and Editor, A. D. McCracken, Geological Survey of Canada, 601 Booth Street, Ottawa, Ontario K1A 0E8; phone (613) 995-4624.

## THE GLOBAL YELLOW PAGES OF PALEONTOLOGISTS

The new edition of the Directory of Paleontologists of the World that has been in planning for the past two years is entering the data gathering phase. A questionnaire is attached to the back of this Newsletter that will allow you to provide all the data necessary for your name to be included in that Directory. All data must be returned to Rex Doescher, at the address given on the questionnaire, by December of 1988. Publication of the Directory is planned for mid-1989, just prior to the International Geological Congress in Washington, D.C.

## POLLEN PROGRAM FOR THE IBM PC

A new, easy to use, interactive program to create pollen percentage, influx and concentration diagrams is available. The program runs on an IBM PC (or compatible) with CGA graphics and an Epson (or compatible) dot matrix printer. The program is distributed with a manual, as shareware:

use it, and if you like it, pay a user's fee of \$100. Downloading arrangements may be made at (519) 578-7599. Additional information and program diskettes (\$10) are available by mail from:

Michael Jones  
92 York Street  
Kitchener, Ontario  
CANADA N2G 1T7

## MEETINGS OF INTEREST

### THE CANADIAN PALEONTOLOGY AND BIOSTRATIGRAPHY SEMINAR

The 1987 Canadian Paleontology and Biostratigraphy Seminar (under sponsorship of the Paleontology Division, Geological Association of Canada), will be hosted by the Department of Geology, University of Western Ontario, London, Ontario.

Talks are to be presented all day Saturday, September 26, and during the morning of Sunday, September 27. It is anticipated that two keynote speakers will be on the program. Papers on any paleontologic/biostratigraphic topic are invited. Graduate students, in particular, are encouraged to participate. A cash award will be given for the best student presentation.

For further information, contact:

Dr. A. C. Lenz  
Department of Geology  
University of Western Ontario  
London, Ontario  
N6A 5B7  
Phone (519)661-3195

### VI MEETING OF PALEOBOTANISTS AND PALYNOLOGISTS - BRAZIL

The Department of Paleontology and Stratigraphy of the Institute of Geosciences, University of Sao Paulo, announces the VI Meeting of Paleobotanists and Palynologists (Brazil), to be held at the Institute, December 8-12, 1987. This session will mark the 10th year of this successful series of biennial meetings. This meeting is supported by the Associacao Latinoamericana de Paleobotanica e Palinologia (Brazilian branch) and the IGCP Project 237, "Gondwana Floras."

The purpose of this meeting is to promote the free exchange of ideas among specialists. Emphasis will be on Brazilian and South American topics of research. The meeting will include technical sessions, guest lectures and discussions of the common problems encountered by both paleontologists and neontologists. There will be a meeting for participants in the IGCP Project 237, "Gondwana Floras," under the leadership of O. Rosler of IG-USP. A one-day field trip to a nearby fossil plant locality is also being planned.

Those interested in presenting papers should submit a neatly typed, double-spaced abstract of 25 lines or less in Portuguese, Spanish, English or French prior to October 31, 1987.

The registration fee of U.S. \$20.00 covers the cost of the program, abstracts, and special publication containing the

contributions to the VI Meeting. Payment should be made out to Fernando C. Fittipaldi, preferably by check in U.S. dollars and sent to the address below.

For further information on the VI Meeting or publications issued in conjunction with previous meetings, contact:

Thomas R. Fairchild, Coordinator  
Comissao Organizadora - VI RPP  
Instituto de Geociencias, USP  
Caixa Postal 20.899  
Sao Paulo, SP, Brazil - CEP 01498

### CALL FOR PAPERS: METHODS OF KEROGEN ANALYSIS FOR HYDROCARBON EXPLORATION

This symposium will be held as part of and during the 7th International Palynological Congress, Brisbane, Australia, August 28 - September 3, 1988.

Successful analysis demands a synergistic approach and contributions are sought from: **Palynologists, Geochemists and Explorationists**, within Industry, Government and Academia.

It is proposed to publish a Congress volume of papers and details of format will be available later this year.

Contact: Dr. Clinton Foster  
Convenor  
C/- Western Mining Corporation  
Petroleum Division  
168 Greenhill Road  
PARKSIDE, S.A. 5063  
AUSTRALIA

### IV INTERNATIONAL CONFERENCE ON DINOFLAGELLATES: FIRST ANNOUNCEMENT

The IV International Conference on Dinoflagellates will be held April 16-22, 1989, at the Marine Biological Laboratory, Woods Hole, Massachusetts (USA). The tentative program consists of four days of formal presentations by invited speakers, a morning session of contributed poster presentations and a mid-week afternoon excursion. Evening sessions, small-group workshops on specialized topics, and a field trip are also being planned. Participants will be housed and fed at the Swope Center, and sessions will be held at the Whitman Auditorium, both on the MBL campus.

Organizing committee members are:

Chairman, David K. Goodman, ARCO Oil and Gas Company, Research and Technical Services, 2300 West Plano Parkway, Plano, TX 75075

Leonard N. Ford, UNOCAL, Science and Technology Division, P. O. Box 76, Brea, CA 92621

Donald M. Anderson, Department of Biology, Woods Hole Oceanographic Institution, Woods Hole, MA 02543

Sarah Pierce Damassa, 3 Ridge Street, Winchester, MA 01890

Please complete and return the accompanying form (attached to the back of this Newsletter) to D. K. Goodman at the above address.



## MEET THE 1987 AASP OFFICERS

### DIRECTORS-AT-LARGE

William C. Cornell



William C. Cornell is an Associate Professor of Geology and Assistant Dean of the College of Science at the University of Texas at El Paso. He received his BS and MS degrees in Geology at the University of Rhode Island and his PhD at the University of California at Los Angeles. He served as Local Committee Chairman for the 1985 Annual Meeting in El Paso and is in his second year as a

Director-at-Large member on the Board of Directors. His research interests include Cretaceous palynomorphs and microplankton, thermal maturation and Permian radiolarians.

Patricia G. Gensel

Pat is Associate Professor in the Biology Department at the University of North Carolina, Chapel Hill. She teaches courses in biology, paleobotany, plant morphology and palynology. Her research interests are centered on plant evolution, particularly

as indicated by the fossil record. She has conducted research on early land plants and spores, primarily of Devonian and Early Carboniferous age, and on the Upper Cretaceous floras of North Carolina. Her investigations of *in situ* Paleozoic spores are particularly worthy of note. Pat is author, with H. N. Andrews, of the book *Plant Life in the Devonian* and she has written numerous papers dealing with Devonian-Early Carboniferous plants and spores.



David K. Goodman



Dave is Principal Research Paleontologist in the Seismic Stratigraphy Section at the ARCO Oil and Gas Company Research Center in Plano, Texas. He received his BS and MS in geology from Virginia Polytechnic Institute and State University, and PhD from Stanford University. Prior to joining ARCO in 1983, Dave was a biostratigrapher at Exxon Production Research Company in Houston for five years. His research interests include the geologic and evolutionary history of the

dinoflagellates, integrated Paleogene biostratigraphy and the scales, biotic response models in depositional sequence stratigraphy, and the development and application of integrated database/image retrieval systems in micropaleontology. He has taught stratigraphy at Southern Methodist University, and is Chairman for the Fourth International

Conference on Dinoflagellates to be held at Woods Hole Oceanographic Institution in 1989. He recently assumed the position of Journal Editor for *Palynology*, having served as Assistant Editor during 1986.

Barbara L. Whitney

Barbara received her PhD in Geology at Virginia Polytechnic Institute and State University in 1976. After teaching at the University of Washington, Seattle, she joined Union Oil of California (now UNOCAL) in 1979. She has been employed at the Fred L. Hartlet Research Center of UNOCAL in Brea since then. Her current research interests are on Lower Cretaceous and Upper Jurassic palynomorphs, particularly dinoflagellates, of the Gulf of Mexico margin and of the North Sea.



Barbara has served AASP in the following capacities:

AASP delegate to the COSUNA Steering Committee  
Chairman of the Nominating Committee  
Chairman, Judging Committee, L. R. Wilson Best Student Paper Award and as a member of that committee  
Chairman, Ballot Committee

Barbara is currently a member of the Awards Committee and a Director-at-Large.

Outside of palynological research, Barbara's interest centers on traditional music of America and the British Isles, with emphasis on the fiddle. For six years she has been a member of an all-female, old-fashioned string band which has performed all over southern California.

## AASP FOUNDATION

### BOARD OF TRUSTEES

Norman J. Norton, Chairman



Norm earned a BS degree from Southern Illinois University (1958) and an MS degree (1960) and a PhD (1963) from the University of Minnesota. He entered teaching in 1964 as an assistant professor of biology at Hope College, Holland, Michigan. He left Hope College as a full professor in 1974 and assumed the chairmanship of the Biology Department at Ball State University, Muncie, Indiana.

During the next five years, Norm held a variety of positions at Ball State including that of Acting Dean of the College of Arts and Sciences.

Norm was a consulting geologist for Gulf Oil Corporation from 1970 to 1983. In 1983, he joined the Houston office of Gulf Oil as a senior staff geologist. Since 1985, Norm has

been a biostratigrapher with Chevron Overseas Petroleum, Inc., San Ramon, California.

Norm was awarded the AASP Distinguished Service Award in 1978, in part for his leadership in the Foundation and archiving of AASP records. Norm is the past chairman of the Constitutional Revision Committee and a past chairman of the Nominating Committee. He is currently Chairman of the Archives Committee and of the Board of Trustees.

#### Robert C. Clarke

Bob studied two years at Muskingum College (New Concord, Ohio) before moving to the University of Oklahoma in Norman. There he earned a BS in 1959 and an MS in 1961. His MS thesis was on Pennsylvanian coals in Oklahoma. Bob's PhD research on the uppermost Cretaceous Vermejo Formation in Colorado helped him earn his doctorate in 1963.



He joined Mobil Research and Development in 1963 and has held a variety of job assignments with that company during the past 24 years. In addition to palynological research, Bob has served in offshore exploration, coordinated the Exploration Training Program for Mobil's worldwide operations, and worked in the Geology and Geochemistry Groups. Bob is currently the Administrative Assistant to the Exploration Research Manager, as well as conducting two research projects.

Bob is a Founding Member of AASP and has been active in the organization since then. He has served in the following capacities:

AASP Editor: 1968-69  
Secretary-Treasurer: 1970-73  
Director-at-Large: 1974-75  
President: 1973-74  
Trustee and Treasurer, AASP Foundation: 1977-present

Bob belongs to the Dallas Geological Society and is the Field Trip Chairman of that organization. He is on the Student Chapter Committee of the AAPG and has coordinated the student field trips for them since 1984. Bob was the Co-Chairman of the 1983 AAPG Annual meeting in Dallas. He is the Field Trip Chairman for the 1990 GSA Annual Meeting to be held in Dallas.

Bob is a "hard core" stamp collector. The stamps of Switzerland are of particular interest to him.

#### Richard W. Hedlund



Dick earned a BS degree in 1957 from the University of Massachusetts at Amherst and then moved to the University of Oklahoma in Norman to pursue an MS degree. His thesis on the "Micro-fossils of the Sylvan Shale (Ordovician) of Oklahoma" helped him earn that degree in 1963. Three years later a PhD was conferred upon Dick, also from the University of Oklahoma, for his disser-

tation research on the "Palynology of the Red Branch Member of the Woodbine Formation (Cenomanian), Bryan County, Oklahoma." He is currently a Special Research Associate at the Amoco Production Company Research Center in Tulsa, Oklahoma. His research spans Mesozoic and Cenozoic palynostratigraphy in almost all areas of the world.

Dick has been an active member of the AASP since it was organized. He was a founding member (1967) and served on the Constitution Committee (1967-68). He has a long record of service to AASP, as is shown by the following list:

Director-at-Large: 1968, 1975-76  
Membership Directory (Originator): 1969  
Editor and Publications Committee: 1969-1973  
Assistant Editor: 1973-74  
President: 1974-75  
Ballot Committee Chairman  
Co-Chairman: 1977 AASP Meeting (Tulsa, OK)  
AASP Foundation Trustee: 1977 to Present

Dick was awarded the AASP Distinguished Service Award in 1983.

### EDITORIAL STAFF

#### Douglas J. Nichols, Managing Editor

Doug's summary biography was published in the previous issue of the Newsletter Vol. 20, No. 1, page 2.

#### David K. Goodman, Journal Editor

See David's biographical sketch in the section on "AASP Candidates for Office" and under "Director-at-Large" in this section.

#### Reed Wicander, Book Review Editor



Reed earned a PhD in 1973 from the University of California at Los Angeles. He has been a professor of Geology at Central Michigan University, Michigan, since 1976. His research interest is in Paleozoic palynology, with an emphasis on acritarchs. Reed spent 3-1/2 months (April-July, 1986) at the Nanjing Institute of Geology and Paleontology, Peoples Republic of China. He spent his visit studying the Devonian acritarchs of Xinjiang Province. Reed has published 19 papers and one book.

Reed's service to AASP has been varied and includes:

Judge for the L. R. Wilson Best Student Paper Award  
1980, 1983, 1985  
Publicity Committee: Member 1981-85; Chairman 1985-86  
Director-at-Large 1984-86  
Chairman of Ballot Committee 1985  
Book Review Editor 1985-Present

Reed is a member of 12 other professional societies, including the American Association of Petroleum Geologists, Society of Economic Paleontologists and Mineralogists, Society of Sigma Xi and the Paleontological Association. He is on the Editorial Board of Micropaleontology

John H. Wrenn, Newsletter Editor



John earned a BS and MS degree in geology from Northern Illinois University, DeKalb, Illinois, and a PhD in geology from Louisiana State University, Baton Rouge, Louisiana. His dissertation research was on the Paleogene dinoflagellate cysts from Seymour Island, Antarctica.

He is a research palynologist at the Amoco Production Company

Research Center in Tulsa, Oklahoma. His research has concentrated on Cenozoic dinoflagellate cysts from most areas of the world. Recently his studies of Neogene and Quaternary deposits in the Gulf of Mexico have necessitated expanding his palynological fare to include reworked Paleozoic spores and acritarchs, and Mesozoic spores, pollen and dinoflagellate cysts. (Talk about a palynomorph cocktail!)

He has served on the Nominating Committee (1984, 1987), and on the Local Organizing Committee for the 1986 AASP Meeting in New York. He convened and presided over the Neogene Dinoflagellate Cyst Biostratigraphy Symposium held during the Annual Meeting in New York City. He is the senior editor of the Symposium Volume, AASP Contributions Series Number 17. John has been a reviewer for Palynology and, since January, 1987, AASP Newsletter editor. John is a member of the British Micropaleontological Society and the Association of Earth Science Editors.

ing to attend the UNESCO sponsored Second International Conference on Paleoceanography (September 6-12, 1986) at Woods Hole Oceanographic Institute in Massachusetts, U.S.A. He was to present an invited lecture at the symposium on marine palynology.

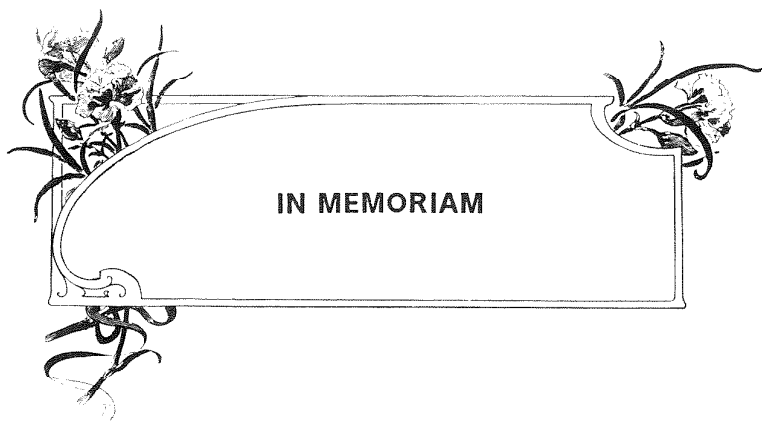
I received the shocking news from Jim Canright at the AASP meeting in New York on October 30, 1986. At first, it did not seem true. How could it be? Only a few weeks previously, I had received Thani's (as called by his friends and colleagues - particularly outside India) sympathetic letter of August 28. I was still planning to thank him for his gesture shown to me when I needed it most. Feeling helpless, I could only think that "heaven was in him, before he was in heaven."

Thani was born on January 1, 1938, in Madras. During his graduate studies he came in contact with the eminent plant morphologist, paleobotanist and paleogeographer Professor B. G. L. Swamy, and under his supervision received an M.Sc. in Botany from the University of Madras in 1962. The prestigious Fyson Prize of Presidency College, Madras, had been awarded already to Thani in 1961 for his proficiency in plant taxonomy. He joined the French Institute, Pondicherry in 1962 where he came in contact with P. Legris and Ph. Guinet. At the Institute, he pursued a career in palynology with zeal and candor establishing his scientific and administrative abilities. He received his Doctor of Science (Doctorat d'Etat) from the University of Montpellier in 1970, under the guidance of Mme. Van Campo, for his dissertation on the Palynology and Systematics of the Palmae dealing with pollen morphology, classification and phylogeny of 800 extant species. He was a fellow of the Linnean Society since 1974, a member of the AASP and several other scientific societies. He served on the Scientific Advisory Board of the Birbal Sahni Institute of Paleobotany, Lucknow, India.

Thani worked tirelessly and published prolifically: comprehensive papers appeared on several tropical families, such as, the Araceae, Clusiaceae, Menispermaceae, Mimosaceae and Sonneratiaceae. Since 1972, he compiled indices of the literature on the morphology of angiosperm pollen in five volumes - Index Bibliographique sur la Morphologie des Pollens d'Angiospermes which has become a very useful source of information for working in palynology.

The modern Indian flora is considered to be mostly derived from the European flora as the indigenous Indian flora was destroyed during the glacial periods of the Quaternary when most of India was under ice. Recently, Thani diverted his attention to the pre-Quaternary flora of India, noticing that several Indian Tertiary taxa are extant with a disjunct distribution in tropical Africa and Southeast Asia. In time, these studies would have brought out significant results providing a clearer picture of tropical Tertiary phytogeography and the interrelationships of the continents involved.

During my visit to Madras in 1960, Professor B. G. L. Swamy introduced me to Thani as his bright student. Little did I know then that Thani would adopt palynology as his vocation and excel in it. Although we exchanged literature and corresponded frequently, I first had the opportunity to know him personally during a field-trip to south India after the Fourth International Palynological Conference in 1977. Palynologists from several countries participated in this field trip which was planned and led by Thani. In spite of several local problems, Thani's care and humor won the hearts of all participants and kept everyone in high spirits. In desolate mangrove swamps or archeological ruins, I heard him saying several times "At first it seems there is nothing worth observing here but soon you will note that a lot of biotic life is going on in this quiet environment. Observe it carefully and it may provide clues to your problems." Who could have expected that will would be snatched away so violently from one who loved life so much.



Ganapathi Thanikaimoni

ce again an innocent has become the victim of terrorists' anny, plunging the worldwide scientific community of palynologists into grief and sorrow for the loss of a valuable member. Dr. Ganapathi Thanikaimoni died during the hijacking of a Pan Am 747 airplane at Pakistan's Karachi Airport on September 6, 1986. Dr. Thanikaimoni was travel-

Since 1977, I met Thani in all successive ICP's. As usual, he always attracted an international audience around him. His metamorphic approach in explaining his views was always interesting and often entertaining. During the Sixth ICP in Calgary, he collected several breakfast items (donuts, sweet rolls, buns, etc.) to explain various shapes and sizes of various organs in the Menispermaceae. During the discussion, I asked him if evolution in the Menispermaceae was a "breakfast" and not a "lunch." He outwitted me with the reply "as long as we can digest it to under the Menispermaceae, it hardly matters."

Dr. Thanikaimoni's work in palynology will remain a source of reference for generations to come. His friends and fellow scientists will miss him and feel cheated by fate in his untimely death. He is survived by his wife, a son and a daughter. May his soul rest in peace and his bereaved family have enough strength to bear their loss and grief.

Satish K. Srivastava  
Rowland Heights, California



**Professor John W. Hall**

Professor John W. Hall, one of the outstanding paleobotanists of the United States, passed away on April 3 after a prolonged illness. Hall had served for 34 years in the Department of Botany at the University of Minnesota, and as the Botany Department Chairman on two occasions. He held a NATO fellowship in 1960-61, became a full professor in 1962, and professor Emeritus in 1984.

Dr. Hall was born in Burlington, Vermont, in 1918. He attended the University of Massachusetts where he received

a BS in 1940 and an MS in 1942. He served in the Armed Forces during World War II and then studied at the University of Illinois, where he completed his PhD studies.

John is remembered by his students as a "galloping goat" in the field. He was always in the lead, always the first to the top of an outcrop. Before his health began to fail, it was hard to keep up with him. Some graduate students finally figured out that he was always ahead of them because he wasn't carrying any of the rocks.

His sense of humor took a while to adjust to. He once tried to get a manuscript published concerning the late Cretaceous invasion of Russian "mistles." This tongue-in-cheek proposal was based on the paleontological thesis that the center of dispersion is reflected in the largest number of occurrences. John noted that the Russians had published numerous reports of the occurrence of a plant genus commonly referred to as a mistle family. Because that genus occurs in the western U.S. today, he drew a trajectory map showing how the Russians had been sending mistles into the U.S. from the north for millions of years.

A student in an introductory Plant Anatomy class once asked him why his microscope had a dark line in the ocular that rotated when the ocular was rotated. Its a "hayuh" Professor Hall retorted. "A hayuh," said the student in perfect mimicry. "That's right," said the good professor, "a hayuh." The look on the student's face indicated not only incomprehension, but total disbelief. Hall began to pat himself on the head. "Hayuh," he said, "hayuh." The student still didn't understand until a graduate T.A. explained that the professor was trying to say "hair."

I found out what kind of mettle John was made of one dark night while camped out on Fort Peck Reservoir, Montana. We were using huge (and heavy!) army-surplus tents, supported by heavy-walled pipe. The wind came up and tore through the camp, knocking down every tent. The winds were so strong that the interlocked steel coverings on the surge towers of the dam were torn loose and blown over the country side. In fact, the winds were clocked in excess of 100 mph. As kerosene lanterns allowed an assessment of the damage, Hall scrambled out from under a pile of canvas and twisted pipe. His forehead was gushing blood from a cut inflicted by the glancing blow of a piece of pipe. At 3:00 a.m., in the rain and wind and dark, he brushed the blood aside and said "I guess we better get the sewing kits out."

John's research interests varied from the megascopic (coal balls, Paleozoic and Mesozoic leaves and stems) to the microscopic (Cretaceous/Tertiary palynomorphs).

Palynological confirmation of the Cretaceous/Tertiary boundary in the Hell Creek area of Montana was accomplished by Hall and his students in the mid to late-60's. The area is now under scientific scrutiny because of the discovery of anonymously high iridium concentrations in a boundary clay and the possibility of a bolide impact in the area. Hall and his students had hypothesized in the mid-60's that the floristic change across the boundary was the result of a changing environment. The sedimentary sequence consists of Late Cretaceous deltaic sediments below the boundary and early Tertiary coal swamp deposits above the boundary. Vertebrate paleontologists have documented a decrease in reptilian diversity as the boundary was approached; an analogous change was also apparent in the flora.

The latest focus of his research was on the evolution of megaspores, particularly within the Salviniales. These were the love of his life, and he had reached a level of synthesis with this group that has not been reached by anyone else. He studied and cultivated hundreds of living species. He compared his results with thousands of fossil specimens and his in-progress manuscripts note relationships between Bal-



meisporites, Ariadnaesporites, Rhizophagites, Azolla, Salvinia.

In 1985, John received the Distinguished Service Award from the Paleobotanical Section of the Botanical Society of America, "In Recognition of Exceptional Leadership and Devoted Service." He had served as chairman of the Paleobotanical Section, and as a Council Member of the Botanical Society of America. He was a Director-at-Large for the American Association of Stratigraphic Palynologists.

John Hall, an able and knowledgeable teacher, will be greatly missed by his family, colleagues, friends and students.

Donald F. Oltz  
Illinois Geological Survey  
Champaign, IL 61820

## UPCOMING PRESENTATIONS BY AASP MEMBERS

If you are presenting a paper at an upcoming meeting, other than the AASP Annual Meeting, let your associates know. Send the pertinent data, as exemplified by the following announcements, to the Newsletter Editor.

**Demchuk, T. D.\* and Singh, C.** (University of Alberta and Alberta Research Council, Edmonton, Alberta, Canada).

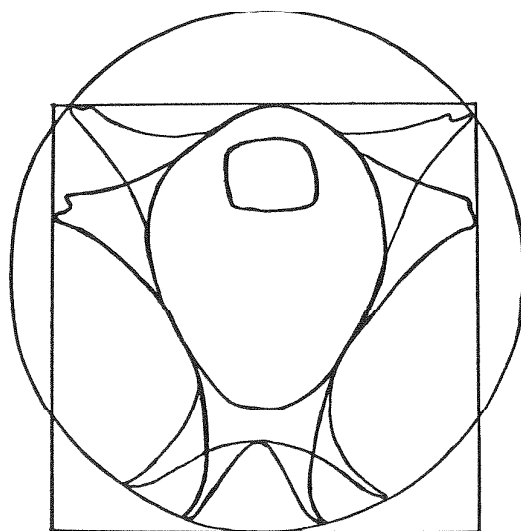
Palynostratigraphy of the Paleocene strata of west-central and southern Alberta.

T. D. Demchuk will present this joint paper at the Geological Society of America, Rocky Mountain Section Meeting, May 2-4, 1987, Boulder, Colorado.

**Fleming, R. Farley** (University of Colorado, Department of Geological Sciences, Boulder, Colorado).

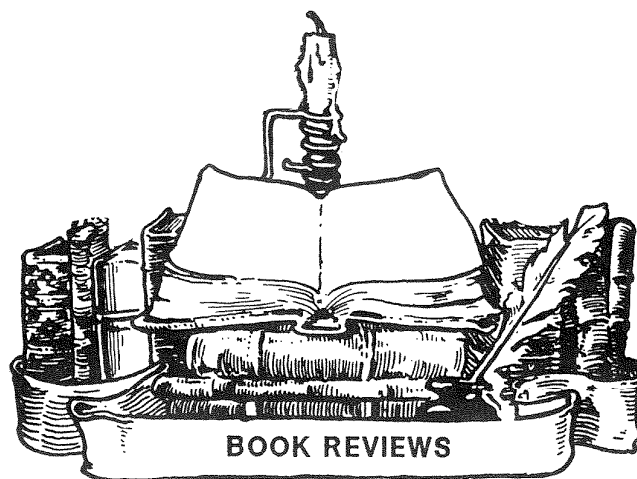
Paleoenvironmental Significance of Fossil Chlorococcalean Algae from the Raton Formation, Colorado and New Mexico.

This paper will be presented by Farley at the Geological Society of America, Rocky Mountain Section Meeting, May 2-4, 1987, Boulder, Colorado.



JW/1987

Vitruvian Dinocyst



## Mineral Exploration, Biological Systems, and Organic Matter.

by Donald Carlisle, Wade Berry, Isaac Kaplan and John Watterson, eds., 1986, Prentice-Hall, Inc., Englewood Cliffs, NJ 07632, 465 p., \$49.95.

An old cross-disciplinary field, biological prospecting for ore deposits, is receiving both new input and new theoretical underpinnings. *Mineral Exploration, Biological Systems, and Organic Matter* is the outgrowth of a 1983 conference at UCLA. The book is divided into three sections: botanical prospecting, microbial prospecting and geochemical prospecting using humic substances in soils. Case studies and detailed explanations of theory are presented for plants, bacteria and soils; algae were generally ignored.

The section on plants opens the book with a terrific article by Wade Berry on the physiological response of plants to metals. Larry Gough draws an eye-opening set of diagrams to show how a variety of unrelated factors, one of which may be an ore body at depth, could result in the same zonation of vegetation. I. Thornton shows fascinating data on the seasonal changes in metal uptake by plants.

P. J. Peterson discusses how the development of tolerance to metals such as Ni, Al and Mn could lead to speciation. J. H. Richard's chapter is a gem - finally, here is a paper that shows the different morphologies of roots and discusses the depths of penetration of tap roots. R. R. Brooks debunks the myth that *Equisetum* accumulates gold; instead, it accumulates ash, some of which is from metals that will precipitate sulfides during the analytical procedure. On the other hand, W. E. Baker reports on a pine tree that contained 125 g of gold. C. E. Dunn discusses how the forests of central Canada are being used to identify hidden ore bodies. E. L. Hoffman and B. J. Booker present a useful chapter on the different kinds of analytical techniques that can be used in gold exploration. W. C. Riese and G. K. Arp found that Douglas fir accumulates Pt but not Ni or Cr over the Stillwater complex. S. C. Smith and R. E. Fournier show that deposition of atmospheric Pb is beginning to interfere with exploration for Pb deposits.

The lead article in the section on microbial prospecting is a chapter by D. M. Updegraff that is much too short. The chapter is an exciting overview of old and new research in the field of microbial prospecting for both petroleum and ore deposits. H. L. Ehrlich dis-

cusses pathways by which bacteria interact with metals - precipitate, solubilize, avoid or detoxify. G. Stotzky and H. Babich pulled together an enormous amount of data on how bacterial reactions differ as pH, Eh, availability of cations and anions, water hardness, formation of clays and metal oxides, presence of organic compounds, temperature, and pressure vary and compete in the real world. A. O. Summer's chapter is the reason for reading this book; finally, a microbiologist has written an explanation in English on plasmids, transduction and recombinant DNA with analogies to every day life. Plasmids are independent chromosomes that move through the bacterial population and carry genes that give resistance to deleterious agents (antibiotics and heavy metals) in a bacteria's environment. Therefore, metal deposits have gossans of metal-tolerant bacteria. Very interesting bacterial case studies are included. For example, R. R. Colwell et al., report on the uptake of metals in Chesapeake Bay and G. B. Michaels et al., discuss a highly mineralized wilderness area in Colorado. B. H. Olson and T. Barkay report the results of their study on soils downwind of smelters and J. R. Watterson et al., discuss how penicillin resistance in microbial populations can be used to pinpoint areas with mineralization.

In the section on humic substance prospecting, G. C. Curtin and H. D. King produce a terrific diagram showing how plants and soil horizons partition metals. W. E. Baker ran a series of watershed experiments to test with titration, polarography, electrophoresis, and X-ray diffraction if humic substances could solubilize metals, and to show that "insoluble" metals such as gold are easily solubilized by humic substances in soils. M. Schnitzer explains how organic substances in soils are studied. He uses bases and acids to separate them into humic acids, fulvic acids and humin and then explains what kinds of bonds are available in each fraction to precipitate metals. E. M. Perdue and C. R. Lytle show that soil chemistry interacts with the availability of metals to plants, and then explain that biogeochemical prospecting works best in arid soils that produce no clays and humic substances to compete with plant roots.

This collection of data should be of great interest to those that make their living in mineral exploration. However, mineral explorationists will have some work ahead of them before they can use this book for reference. The three sections have three different indexes and rarely did the indexers index the names of the ore deposits discussed in the book.

Palynologists also have a stake in the subject of this book, even though at first it sounds far removed from microscope studies of organic matter. Tables in five chapters list all together over 100 species of plants that are known indicators of As, Au, B, Co, Cr, Cu, Fe, Pb, Mn, Ni, Sb, Se-U, W and Zn mineralization. If plant communities can be used to delineate mineralization, then so might palynomorph associations. An interesting place to test this might be on the age of mineralization of the Mississippi Valley Pb-Zn ores. Literature exists to support Paleozoic, Mesozoic and Cenozoic onset of mineralization. Perhaps a suite of palynomorphs could be identified to help choose between such diverse interpretations.

In six of the chapters on microbes, the interactions between bacteria and As, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sn and Zn are discussed. In places where putrefying bacteria interact with organic tissues in bottom sediments, sulfide minerals are formed and adhere to the tissues. Palynologic microscopic tech-

niques could be applied to the study of adhering metallic minerals and thereby add valuable new data on another biological aspect of ore deposition.

Reviewed by:  
**Elanora I. Robbins**  
 U.S. Geological Survey  
 Reston, VA

#### **Chrysophytes: aspects and problems.**

edited by Jørgen Kristiansen and Robert A. Andersen.  
 Cambridge University Press, New York, New York, 1986, xiv + 337 pages, \$52.50.

The 22 papers published in this volume were collected from 41 contributions to the First International Chrysophyte Symposium held in Grand Forks, North Dakota, in 1983. The papers, covering a variety of topics about chrysophytes (golden-brown algae), are grouped under the following headings: Part I, Definition and relationships; Part II, Taxonomy; Part III, Cell biology; Part IV, Population dynamics; Part V, Ecology and biogeography; and Part VI, Paleobiology. The topics range in scope from ultrastructural studies of individual organisms to broad-scale discussions on chrysophyte systematics.

Part I (Definition and relationships) provides an introduction to the history and current thinking on chrysophyte systematics. Ultrastructural studies of chrysophytes using the transmission electron microscope (TEM) have resulted in a reevaluation of the Chrysophyta and their phylogenetic relationships. Frank Round's chapter, "The Chrysophyta -- a reassessment," summarizes the history of chrysophyte classification and presents a comparison of eight classification schemes. The significance of ultrastructural studies is demonstrated in Frank Hibberd's paper "Ultrastructure of the Chrysophyceae -- Phylogenetic implications and taxonomy." Hibberd defines the Chrysophyceae *sensu stricto* and lists the features on which he bases his classification. Two groups of organisms of interest to paleontologists are the "coccolithophorids" and the silicoflagellates. Hibberd favors removing these two groups from the Chrysophyceae and placing the "coccolithophorids" in the class Prymnesiophyceae and the silicoflagellates in the class Dictyochophyceae.

The taxonomy and cell biology sections (Parts II and III) are primarily of interest to biologists working on modern chrysophytes. These sections cover such topics as new species of *Mallomonas* from New Zealand and chloroplast DNA in the Chrysophyceae. There is little in these sections of direct interest to paleontologists.

Studies on the nature of chrysophyte populations and ecology are presented in Part IV (Population dynamics) and Part V (Ecology and biogeography). Although they make excellent background reading, most of the papers in these sections do not directly address issues important to understanding the paleoecology and paleobiogeography of chrysophytes. Jørgen Kristiansen's paper, "Identification, ecology, and distribution of silica-scale-bearing Chrysophyceae, a critical approach," is a brief but excellent evaluation of the state of ecological studies. Kristiansen emphasizes that proper identification often requires ultrastructural electron microscope analysis. Identification and taxonomy are complicated by various aspects of chrysophyte scale morphology. Many chrysophyte species have a specific succession of several scale morphologies during the life span of each individual, and some species exhibit great intraspecific variation in scale morphology. The importance of seasonal variation in scale structure is essentially unknown. Kristiansen has pointed the way for future research on the ecology and biogeography of modern silica-scale-bearing chrysophytes;

this research will form the foundation for paleoecological and paleobiogeographical studies.

Six papers on fossil chrysophytes were presented at the symposium. Part VI (Paleobiology) contains three of these. "Scale microfossils of Early Cambrian age from Canada," by Carol W. Allison and Jerry W. Hilgert, is a short note illustrating scale microfossils observed in thin sections of rocks from the Tindir Group and the Funnel Creek Limestone of west-central Yukon. Three scale morphotypes present in the thin sections are imperforate scales, perforate scales, and collarlike scales. The authors believe that these morphotypes are comparable to some modern Chrysophyceae or Prymnesiophyceae. Another paper by Allison and Hilgert, in press in the *Journal of Paleontology*, will more completely describe, illustrate and formally name these intriguing fossils.

Gertrude Cronberg's article, "Chrysophycean cysts and scales in lake sediments: a review," provides a wealth of references and information on reports of chrysophyte cysts in lake sediments. Line drawings and 19 scanning-electron micrographs demonstrate the range in morphology of chrysophyte cysts. The various sampling and preparation techniques for cysts and scales are reviewed. A table listing reports of chrysophycean cysts from sediments around the world and a comprehensive reference list make this paper an invaluable source reference for anyone interested in the occurrence of fossil chrysophytes.

The last paper, by Gertrude Cronberg and Craig Sandgren, presents nomenclatural guidelines proposed by the International Statospore Working Group (ISWG). The major issue addressed in this paper is the problem of correlating dispersed statospores with the vegetative cell. The ISWG recommends that published statospore descriptions should clearly identify the specimen on which the description is based, describe the morphology of the statospore using acceptable descriptive terminology, and provide a discussion of pertinent stratigraphic and ecological information about the morphotype. Instead of using binomial nomenclature for chrysophytes cysts, workers are encouraged to use a personal number system (e.g., "Statospore No. 1 Cronberg"). This system of statospore descriptions and numbers would be independent of the descriptions and species names based on the vegetative cell. The ISWG hopes to assign each new morphotype (with its number and author name) a permanent, unique reference which would be stored in a computer for access by anyone working on chrysophytes.

Because of its broad scope, this is a valuable book for all students of chrysophytes. Only a few of the articles are of direct interest to paleontologists, but I believe that many of the articles written about the biology of modern chrysophytes provide excellent background information for the study of fossil chrysophytes. The illustrations are of excellent quality and the papers are, for the most part, well edited. I recommend this book to scientists working with fossil or living chrysophytes.

Reviewed by:  
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#### ***Quantitative Stratigraphy.***

by F. M. Gradstein, F. P. Agterberg, J. C. Brower, and W. S. Schwarzacher, Published by the United Nations Educational, Scientific and Cultural Organization (UNESCO), Paris, France, and D. Reidel Publishing Company, Dordrecht, Holland. 1985, 598 pp., \$77.00 hardbound, \$70.00 softbound.

Project 148 of the International Geological Correlation Programme began with quantitative biostratigraphic correlation, added quantitative lithostratigraphic correlation, and expanded to include chronostratigraphy and large-scale correlation applications. *Quantitative Stratigraphy*, written at UNESCO's invitation, summarizes project accomplishments and "offers a pathway through the 'jungle of methods'" in various aspects of mathematical and statistical applications in stratigraphy.

*Quantitative Stratigraphy* consists of 15 chapters: two introductory chapters, nine chapters on biostratigraphic zonation, one chapter on biostratigraphic correlation, two chapters on lithostratigraphy and one chapter on timescales and burial history. The Appendix consists of (I) computer printouts of nine databases and the results produced by the application of the authors' favorite quantitative technique (RASC or RANKing and SCaling), and (II) a compilation of published references and vendors' addresses for many of the computer programs used in the text. A glossary and an index are provided. The book was produced from camera-ready typescript and includes nearly 200 line drawings and almost 100 tables. The authors stress practical rather than theoretic approaches, and include plenty of actual case examples in which the methods they discuss have helped solve geological problems in basin analysis.

The book showcases Agterberg and Gradstein's efforts in automated stratigraphic correlation, especially RASC. Details of computer programs and data requirements are stressed, as are mathematical expressions of uncertainty. Results produced by other methods are compared to results produced by RASC. The authors make clear the distinction between methods which produce "average" stratigraphic ranges, such as RASC, and methods which produce "total" stratigraphic ranges. Naturally enough, emphasis is on those methods with which the authors have close first-hand experience. The topics of unitary associations and graphic correlation receive proportionately little coverage. Time correlation using ecological or morphological gradients or parameters are consciously omitted, but adequate references are provided.

*Quantitative Stratigraphy* is not a book to be read casually. The preface states that it is meant to be a textbook designed for graduate students, exploration paleontologists and geologists, and university teachers; no one should even consider reading it without a pencil and paper in hand. (And a computer nearby, if possible.) Even those with firm background will want to reread many of the references cited in the text. The authors are so familiar with the previous literature that they tend to forget that the reader may not be as familiar. That's ok. Each chapter has an ample list of references. *Quantitative Stratigraphy* is appropriate for an advanced seminar-type course, preferably with at least one "computer jock" in the class. Many of the concepts and details that make for difficult reading will also make for stimulating classroom discussions.

The fifteen chapters in *Quantitative Stratigraphy* are not well integrated either within or between chapters. For example, the reasons why a fossil might not be included in material within the taxon's total stratigraphic range are discussed in at least three different chapters. Some readers will find the independence/redundancy distracting; others will find the different viewpoints help reinforce important concepts.

*Quantitative Stratigraphy* differs from typical textbooks in the amount of original material presented. Brower and Bussey's chapter "A Comparison of Five Quantitative Techniques for Biostratigraphy" and Agterberg's simulations in "Methods of Scaling Biostratigraphic Events" contain thought-provoking new results that would be equally appropriate as topical journal articles.

The writing styles and philosophies of the individual authors come through in *Quantitative Stratigraphy*. Brower's chapters are almost conversational, and each is relatively independent of preceding and succeeding chapters. Agterberg's chapters build so heavily on his previous chapters (whether one or several chapters back) that they are virtually unreadable without mastery of previously introduced concepts. His introductory chapter is especially difficult because it draws from material in succeeding chapters. Schwarzscher's chapters are quite readable and he makes an obvious effort to start from first principles. Even so, anyone unfamiliar with the basics of time series analysis is in for some remedial reading. Gradstein does a good job of emphasizing practicality, summarizing, and synthesizing.

As in any work of this size, a reviewer can find mislabelled figures, oversimplifications and errors in detail, but most are not serious. The index seems to have a fair number of mistakes and omissions. The glossary has a few tautologies (e.g., Gamma Distribution - a type of frequency distribution of which the mathematical expression is an incomplete gamma-function) but covers the range from agglutinated to calpionellids to Student's t-test to Tethys to Walther's Law. I do think the figure captions, in general, could and should be more informative. Palynologists will be amused to note that fossils are "animals" and assemblages are "faunas" throughout. Brower and Bussey put in one line with me in mind: "no offense is intended to those who work with fossil plants" (p. 280) but are unrepentant in preceding and succeeding pages.

In sum, *Quantitative Stratigraphy* has a lot of valuable information, abundant illustrations and examples, enough references to get even the novice started, but it's not for the faint at heart.

Reviewed by:  
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## FOR YOUR BOOKSHELF

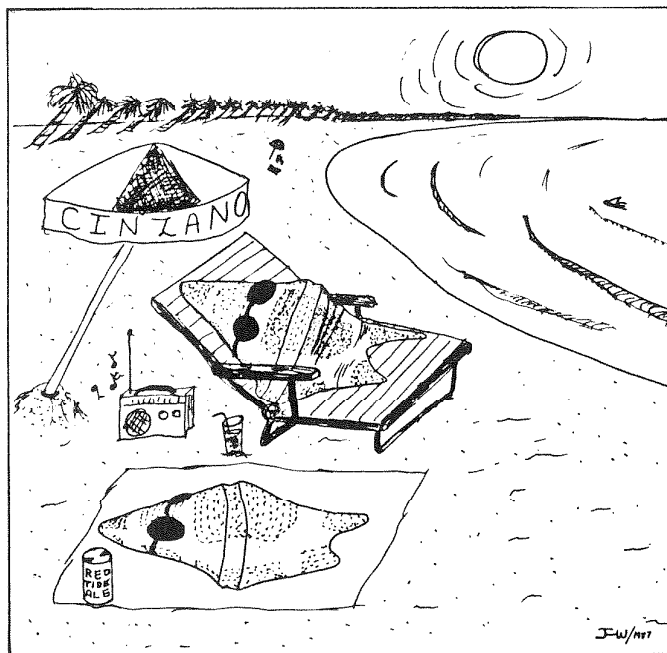
Alexander D. McCracken, Editor of the Paleontology Division Newsletter, indicates that the following publications are available from the Geological Association of Canada.

*Silicified Silurian odontopleurid trilobites from the Mackenzie Mountains.* B. D. E. Chatterton and D. G. Perry, 1983. *Palaeontographica Canadiana* No. 1, 126 pp., 36 Pl. (\$21.00 plus postage and handling).

*Sponges of the Burgess Shale (Middle Cambrian), British Columbia.* J. K. Rigby, 1986. *Palaeontographica Canadiana* No. 2, 105 pp., 20 Pl. (\$25.00 plus postage and handling).

*Trilobites of the Upper Cambrian Sunwaptan Stage, southern Canadian Rocky Mountains, Alberta.* S. R. Westrop, 1986. *Palaeontographica Canadiana* No. 3, 179 pp., 41 Pl. (\$25.00 plus postage and handling).

Order from: GAC Publications, c/o Business and Economic Services, 111 Peter Street, Suite 509, Toronto, Ontario M5V 2H1. Add \$3.00 (Canada) or \$5.00 (elsewhere) per publication for postage and handling (also available from the Canadian Society of Petroleum Geologists, 505, 206 7th Ave. SW, Calgary, Alberta T2P 0W7). If paying by Visa or Mastercard (CSPG accepts only Visa) give full card number, expiration date and signature.



"You're right, Caruthers, life is sweet in the inner neritic zone."



## WORLD DIRECTORY OF PALEONTOLOGISTS QUESTIONNAIRE

**NOTE:** Please print or type responses using the Roman Alphabet

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Address (institution if any, street number or post office box, city, state/country and postal code)

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Business Phone Number, Including City or State Area Code

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Principal areas of study (either systematic, i.e., brachiopoda; or topical, i.e., evolution). Please answer (A) or (B); or (A) and (B).

(A) Maximum of two specializations on fossil groups, with stratigraphic range and geographical area of interest

(1) \_\_\_\_\_ Range \_\_\_\_\_ Area \_\_\_\_\_

(2) \_\_\_\_\_ Range \_\_\_\_\_ Area \_\_\_\_\_

(B) Topical approaches (cladistics, functional morphology, biostratigraphy, ecology, evolution, etc.). Limit is 10 words or less

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### Example of Entry

\*\*\*\*\*  
Grant, Richard E., Natural History Bldg. E-207, Smithsonian Institution, Washington, D.C. 20560, USA. (202) 357-2211/2405. Brachiopoda: Perm., W. U.S., Tethys. Biostr., Ecol., Funct. Morph.  
\*\*\*\*\*

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Rex Doescher  
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**IV INTERNATIONAL CONFERENCE ON DINOFLAGELLATES**

Marine Biological Laboratory, Woods Hole, Massachusetts, April 16-22, 1989

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Address \_\_\_\_\_

Telephone \_\_\_\_\_

Yes, I plan to attend ICD IV \_\_\_\_\_

Uncertain, but please send info. \_\_\_\_\_

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 If you have suggestions regarding topics to be covered at this meeting, please advise.

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Second circular will be sent in early 1988.

Send to: David K. Goodman  
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Research and Technical Services  
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