



AASP NEWSLETTER

N. O. FREDERIKSEN, EDITOR

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NEW BOARD OF DIRECTORS

Following are members of the new AASP Board of Directors, who took office at the September 1982 annual meeting in Dublin:

President: Douglas J. Nichols
President-Elect: John A. Clendening
Secretary-Treasurer: Kenneth M. Piel
Managing Editor: Vaughn M. Bryant, Jr.
Directors-at-Large: James E. Canright(1)
Jocelyne A. Legault(1)
Raymond A. Christopher(2)
Rex Harland(2)

- (1) Newly elected, serve until 1984
(2) Elected last year, serve until 1983

MESSAGE FROM THE PRESIDENT

It was an honor for me to be elected President of the American Association of Stratigraphic Palynologists, and it was with pride that I took office at the annual business meeting, this year held in the august surroundings of the Great Hall at Trinity College, Dublin. Out-going President Lewis E. Stover presented me with, not a conventional gavel, but the book of Robert's Rules of Order used at the founding meeting of AASP, which has since been handed down to successive presidents of the association. I hope to continue in the best traditions of AASP, which has grown from those humble but hopeful origins in 1967 to be the preeminent international palynological society, now numbering 900 members in 49 countries worldwide.

The annual "message from the president" is a tradition that gives me the opportunity to make several important announcements, including the presentation of awards that took place in Dublin, formal notice of the establishment of the AASP Student Scholarships, and news from the Editorial Staff.

AASP Medal for Scientific Excellence.---This award was conceived to recognize unusually significant published contributions to the science of palynology. The first Medal for Scientific Excellence was awarded to William R. Evitt. The inscription on the award cites Bill Evitt "for 25 years of outstanding scholarship in the study of fossil dinoflagellate cysts. His early insights of morphology stabilized dinocyst taxonomy and encouraged precise species descriptions which have

greatly enhanced the use of dinoflagellate cysts in geologic studies." Harry Leffingwell, Awards Committee Chairman, made the presentation. It was accepted by Lew Stover for Bill Evitt, who was unable to attend the Dublin meeting. The award consists of a bronze medal mounted on a felt-lined, walnut presentation case, to which is attached an engraved plaque bearing the inscription quoted above. My personal congratulations go to Bill Evitt, a most deserving recipient.

AASP Honorary Membership.---The association grants honorary membership to senior members of the profession whose careers are marked by exceptional leadership, teaching, and other contributions to palynology. At the Dublin meeting, Lew Stover presented this award to Charles Downie, professor of palynology at Sheffield University. The award consists of a personally inscribed parchment bearing an embossed AASP emblem and red ribbon, and includes lifetime membership in the association. The inscription reads: "The A.A.S.P. bestows an Honorary Membership upon Charles Downie for nearly three decades of dedicated and inspired teaching and scientific achievement in the study of fossil acritarchs." My congratulations go to "Jock" Downie, who joins the distinguished ranks of AASP's previously named honorary members. They are Alfred Eisenack, Leonard R. Wilson, and Knut Faegri.

AASP Distinguished Service Award.---This award was established to honor individuals for outstanding contributions to the American Association of Stratigraphic Palynologists. The first award was presented to Jack D. Burgess. The award consists of a personally inscribed parchment with embossed emblem and red ribbon. The inscription lauds Jack Burgess "for his untiring efforts in support of the association through his leadership in its various elected offices, his organization of the Organic Maturation Symposium and his enthusiastic contribution to various key committees." My congratulations to Jack Burgess. I think it especially appropriate that his award was presented in Dublin, because it was largely through his efforts that the joint meeting of AASP and CIMP was organized and held there this year.

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

L. R. Wilson Student Paper Award.--This award, which was initiated last year, is available annually and is given to the student who, in the opinion of a panel of judges, has presented the best qualifying paper at the AASP annual meeting. This year it was presented to Phillipe Steemans, University of Liege, for his paper "Gedinnian and Siegenian Spore Stratigraphy in Belgium." The prize consists of an inscribed parchment, two years' free membership in AASP, and a cash award generated by an endowment established by Leonard R. Wilson. This year the cash award was \$300 U.S. ("or the equivalent in the currency of your choice," said Lew Stover in making the award).

AASP Student Scholarships.--The American Association of Stratigraphic Palynologists is pleased to announce its program of Student Scholarships to support studies in palynology. Currently two such scholarships for \$250 (U.S.) each may be awarded annually. Ordinarily the scholarships will be awarded to graduate students, but advanced undergraduate students may also apply. The qualifications of the student, the originality and imagination evident in the proposed project, and the likelihood of significant contribution to the science of palynology are factors that will be weighed in selection of award winners. An application form is attached to this issue of AASP Newsletter.

News from the AASP Editorial Staff.--As most of you are aware, I served simultaneously as President-Elect and as Journal Editor for AASP this past year. This came about because I had agreed to relieve Raymond A. Christopher, who had served long and well as journal editor, and so was appointed to the staff by Managing Editor Vaughn M. Bryant, Jr. prior to being nominated for office. Vaughn Bryant had served the association in editorial capacities for many years. At one time he edited both the Newsletter and the journal, Palynology, singlehandedly. At about the time these tasks were proving too great for one individual, Vaughn was elected Managing Editor and was empowered to appoint a staff to assist him. He first appointed Ray Christopher as Journal Editor and later me as Newsletter Editor. Subsequently I replaced Ray, and Norman O. Frederiksen was appointed as Newsletter Editor. I have agreed to continue to edit Palynology this year, and Norm Frederiksen will continue as your Newsletter Editor. Vaughn Bryant remains as our able Managing Editor.

The Editorial Staff is looking for volunteers, however. We need individuals willing to dedicate themselves to the often time-consuming, sometimes frustrating, frequently rewarding, and always important work of the Association in communication and publication. If you think you may be interested in serving AASP in this way, please write or call Managing Editor Bryant and let him know. I wish once again to thank all those who assisted with Volume 6 of Palynology by providing technical reviews of manuscripts. This vital need continues, of course. Anyone who would be willing to review manuscripts in their research specialty who has not recently sent a form to the editor can drop a note to Vaughn Bryant or me. We need the help of

everyone--authors, reviewers, and editors--to continue toward our goal of making Palynology the leading palynological journal in the world.

The current issue of Palynology, Volume 6, will be distributed in October. We are a little late, compared with last year, but would still have made the "traditional" distribution as of the annual meeting date except for the fact that the meeting was a month "early" this year! Lateness can be ascribed also to the typesetters relocating their offices--and perhaps to the change in journal editors as well! Volume 6 is worth waiting for. It contains 304 pages including 15 research papers and the transcript of the panel discussion on the future of palynology held at the Dallas meeting in 1979. Also included are abstracts from the proceedings of the New Orleans meeting (1981) and newly revised Instructions for Authors. My thanks go to Ray Christopher, who helped by initiating Volume 6 and who continued to provide support and encouragement to the new journal editor.

Volume 7 is already in preparation, and we are accepting high-quality manuscripts on any aspect of palynology. Participants in the AASP-CIMP Dublin meeting especially are invited to submit manuscripts of papers they presented there. (If you are preparing a manuscript for Palynology, please refer to those new Instructions for Authors!)

Finally, my thanks to all of you who helped to elect me to this office, and to those who have expressed support. It is indeed an honor as well as a pleasure to serve. I hope to see as many of you as possible in San Francisco in 1983.

Douglas J. Nichols

SAN FRANCISCO - HERE WE COME!

The Sixteenth Annual Meeting of AASP will take place from October 25-29, 1983, at the San Francisco Airport Hilton Hotel where 250 rooms have been reserved for what is expected to be an exceptionally well-attended gathering of palynologists who will be attracted by the combination of technical sessions and the Bay Area's well-known beauty and tourist charms.

Registration will begin the evening of Monday, October 24. There will be a one-day symposium on Tuesday, October 25, on the Palynology of the Western Tertiary Floras, honoring Dr. Harry MacGinitie, one of the pioneers of West Coast paleobotany and palynology. Papers are invited from palynologists who have recently investigated the pollen and spore floras of western Tertiary formations which have also produced described megaflores. We will specifically emphasize palynology of the floras which have been monographed by Dr. MacGinitie, but papers describing other Tertiary palynofloras are also invited and welcome. Currently scheduled are papers on the following paleofloras: Green River, Chalk Bluffs, Chuckanut, Kilgore, Weaverville, Bridge Creek, Succor Creek, Clarkia, Latah, Yellowstone, Florissant and Elsinore. "Mac" himself will also be

giving a paper on his continuing work on the Eocene Wind River Flora.

Authors should submit a title and brief abstract before May 1, 1983, in order to be included in the final program. Consideration will be given to all papers, and those most appropriate to the theme of the symposium will be given preference. Remaining titles submitted will be considered for inclusion in the general program. Write to one of the symposium convenors: Dr. L. H. Fisk, Dept. of Geological Sciences, Loma Linda Univ., Riverside, CA 92515, or Dr. E. B. Leopold, Dept. of Botany, Univ. of Washington, Seattle, WA 98195.

Three days of technical sessions will be held from October 26 to 28. The theme of the meeting will be Palynology and Plate Tectonics, but contributions dealing with all facets of palynology will be welcomed. Dr. W. K. Gealey of Chevron Overseas Petroleum will open the meeting on Wednesday with an outstandingly interesting paper on plate reconstructions from the Late Paleozoic to Tertiary. All sessions of the meeting will take place at the San Francisco Airport Hilton, which has excellent facilities and very convenient and inexpensive transportation to the City.

A one-day field trip on Saturday will include a visit to the Geysers and a tour of the associated geothermal plant with scenic and geologic stops on the way (e.g., Golden Gate Bridge, etc.). Lunch will be at a winery, with an opportunity for tasting and a tour.

At this time we would like to initiate a call for papers, both for the symposium and for the general sessions. In the back of this Newsletter is an abstract form similar to that used by GSA and AAPG (extra copies of the abstract form may be obtained from Virgil D. Wiggins, Chevron U.S.A. Inc., P. O. Box 8100, Concord, CA 94524). Please type your abstract so that it fits within the blue box, using the format shown at the bottom of the form, and using a dark typewriter ribbon. (The abstract form is only for the normal 15- to 20-minute papers. Those giving longer -- keynote, perhaps symposium -- papers can have more space.) Your sending us an abstract in camera-ready form will greatly help us prepare the abstract booklet for the meeting. See you there!

DUES NOTICE

In the back of this Newsletter is the Annual Dues Notice. According to the Bylaws, dues for each year are due by January 1 of that year. This year you will see something new on the Dues Notice -- an opportunity to contribute to the AASP Student Scholarship Fund. For information about the Scholarship, see the President's Message in this issue and also the application form at the back of the Newsletter. When the Scholarship was established at the Spring 1982 Board meeting, the Board suggested contributions of \$10, but of course any amount is welcome.

One of the big problems of foreign members in paying their dues is that bank surcharges or other

currency-changing fees make the cost of the dues considerably more than \$15. One solution is to pay dues three years at a time; that way, you pay the bank fees only once in three years. Another solution is to form groups which pool their dues so that only one check is sent to AASP from each group. If you are interested in forming such a group or would like to know whether any groups already exist in your country, contact our Secretary-Treasurer, Ken Piel. Rex Harland, who is currently on the Board, wrote to the Newsletter, "Anybody in Great Britain who is not in close contact with a fellow member of AASP might like to contact me so that I can organise a collective payment, and any European member who has any problems or points of discussion that need to be raised at the AASP Board meetings might like to channel comments through me."

ANNUAL MEETING (DUBLIN), 1982

Secretary-Treasurer's Report

John Clendening reported that as of August 19, 1982, members carried on the roster (some have not paid for 1982) are 788 individuals and 112 institutions, for a total of 900. Total current assets of AASP, Inc., are \$34,373.

TRAVEL FUND FOR BOARD OF DIRECTORS

For many years, some members and potential members of the Board of Directors have complained about the burdensome travel expenses caused by Board members having to attend all annual and midyear Board meetings during their tenure of office. Members of Nominating Committees have noted that one of the main reasons why people decline to run for AASP offices is that they can't afford to travel to all the meetings. At the Spring 1982 Board meeting, this question was raised again, and after considerable discussion the Board voted to establish a \$1500 travel fund for the Board of Directors, effective 1 January 1983, such fund to be administered by the Board and to be limited to \$300 per annum per person. Applicants for travel funds will have to assure the Board that they have already made reasonable but unsuccessful efforts to secure a travel subsidy elsewhere.

REQUEST FOR ADVICE

Recently the Palaeontology Department, British Museum (Natural History) has been given a large collection of glycerine jelly preparations which have completely dried out. The slides were made 20 to 25 years ago. Does anyone have a technique for resuscitating such mounts? We have tried warming one of the slides in distilled water at 50° C for several weeks but the jelly remains rigid. If anyone has successfully re-prepared similar mounts would they please write and let me have details of their technique(s)? Write: John B. Richardson, Dept. of Palaeontology, British Museum (Natural History), Cromwell Road, London SW7.

(From CIMP Newsletter 28, May 1982)

POSITION OFFERED

M. Klifman Search specializes in the research sciences servicing the petroleum industry. Present opportunity requires a wide breadth of age familiarity and knowledge of dinoflagellates as well as pollen and spores. 3 to 10 years of experience preferred. Contact Mary Klifman: (714) 324-0372; M. Klifman Search, Two Cadiz, Rancho Mirage, CA 92270.

POSITION WANTED

Abdolhossein Zahiri seeks a position as palynologist with industry or a research institute. He has a B.Sc. in geology from Pahlavi University (Shiraz, Iran) and a M.Sc. in palynology from Sheffield University. He has worked five years for the Oil Service Company of Iran (OSCO, now NIOC) as a stratigraphic palynologist and has experience in palynomorphs of the Paleozoic, Cretaceous, and Tertiary. Mr. Zahiri has British residence. Please contact: Mr. Abdolhossein Zahiri, c/o A. Okell, Hulse Heath Farm, Lach Dennise, Northwich, Cheshire, England.

SHEFFIELD UNIVERSITY PALYNOLOGICAL SOCIETY

After considerable discussion, the Master of Science Degree palynologists at Sheffield have taken the step of forming their own society, run by the postgraduate students, and widely supported among the staff and undergraduates. The aims of the society are chiefly academic (lectures, seminars, field trips) although one of the major aspirations this year is a newsletter, to be published sometime during the summer, recording the activities of Sheffield palynology graduates.

Would all ex-Sheffield palynologists help us by sending the following details:

1. Name
2. Year of graduation and degree (PhD/MSc)
3. Research interests
4. Present employer
5. Address

to: Palynology Society, Dept. of Geology, Univ. of Sheffield, Mappin Street, Sheffield, S1 3JD.

(From The British Micropaleontologist, v. 16, March 1982, via CAP Newsletter v. 5, no. 1, 1982)

REPORT ON BRITISH PALAEOBOTANY & PALYNOLOGY 1980-1981

The latest edition of this work is compiled by W. G. Chaloner and G. T. Creber, and was printed in May 1982. The 41 pages have the references arranged in the usual stratigraphic order. Send 2 British Pounds, negotiable at a London bank, and payable to "Bedford College," to Botany Dept., Bedford College, Regent's Park, London NW1.

(From IOP Newsletter 18, Sept. 1982)

ACRITARCH NEWSLETTER

The C.I.M.P. Subcommittee on Acritarcha is going to publish an annual Newsletter along the lines of the Chitinozoan Newsletter. It intends to provide members with news of developments in the Acritarcha, a directory of acritarch workers, an annual directory of acritarch publications, and details of meetings, etc.

As U.S.A. correspondent, I have contacted those U.S.A. workers I am familiar with for information on their publications and research interests for inclusion in the first issue, due out at the end of this year.

I would appreciate hearing from any U.S.A. acritarch worker who would like to be included in the second Newsletter. Also, anyone interested in receiving a copy of the Newsletter may contact either myself or Dr. Ken Dorning, Pallab Research, 58 Robertson Road, Sheffield, S6 5DX, England, who is the editor.

Reed Wicander

2ND INTERNATIONAL PALEOBOTANICAL CONFERENCE

The University of Alberta, Edmonton, Alberta, Canada will be the site of the 2nd International Paleobotanical Conference that is tentatively scheduled for August 18-24, 1984. These meetings, which were so successful in Reading, England, in 1980, will be conducted under the auspices of the International Organization of Paleobotany, and will take place immediately before the Sixth International Palynological Conference that is being planned for August 24-30, 1984, in Calgary, Alberta. It is hoped that the scheduling of both meetings together will provide the opportunity for paleobotanists and palynologists to attend both conferences.

The purpose of this note is to bring to the attention of IOP members the meeting dates for this conference, and to establish a list of potential participants for these meetings. For further information, write Dr. Ruth A. Stockey, Dept. of Botany, The University of Alberta, Edmonton, Alberta, Canada T6G 2E9. A second circular will be mailed to all respondents early in 1983.

FORTHCOMING INTERNATIONAL SYMPOSIUM

An international symposium and workshop on "Late Cainozoic Palaeoclimates in the Southern Hemisphere" will be held in Swaziland (Southern Africa) from 28 August to 2 September 1983, including pre- and post-symposium excursions. This symposium will be held under the auspices of SASQUA, the affiliated society of INQUA. Eminent international scientists are giving keynote addresses.

Enquiries: Dr. David Price-Williams, S.A.R.A., Swaziland National Trust Commission, P.O. Box 100, Lobamba, Swaziland, Southern Africa.

SEM MEETING

Beginning in 1968 there has been an annual meeting which had as its basic theme scanning electron microscopy. Many of you are aware that initially these meetings were sponsored by IIT Research Institute in Chicago; in recent years, and with the modification of the organization, the meetings have been held at various sites around the country. This year the meetings will be in Dearborn, Michigan, April 17-22, 1983.

As a portion of the program this year there will be a section dealing with the plant sciences. One segment in which I am involved in planning is titled: paleobotany/palynology. The purpose of this letter is to bring to your attention these meetings, and to generate interest in your potential participation in the program. The general format in the past has been one of rigorously reviewed, camera ready papers submitted sufficiently early so that the bound volumes containing the papers are available close to the actual meeting date. Paper topics may be variable ranging from technical applications to actual problem solving using scanning electron microscopy.

If your current research activities are utilizing the SEM, I would hope that you would seriously consider submitting a paper for the program this year. To that end I will be happy to supply you with a detailed outline of the meetings, and of course would be pleased to respond to any questions.

Thomas N. Taylor, Dept. of Botany, Ohio State Univ., Columbus, Ohio 43210

SPORE COLOUR CHART

Sukla Sengupta's Spore Colour Chart is available for distribution. This is a scale of thermal maturation for use in oil and gas exploration. Ten spores are figured, one fresh and nine subjected to temperatures between 100° and 300° C in steps of 25° C. An annotated handy colour picture postcard or a colour diapositive is available at \$10 each from Paul Grant, Department of Geology, Royal School of Mines, Prince Consort Road, London SW7 2BP. Please send money with order. Make cheque payable to "Spore Chart."



TRIVIA DEPARTMENT

Karl Newman has pointed out to us that New Mexico State University appears to have chosen a syncolpate pollen form for its logo (see illustration). Obviously, this is a university that's alert to the times. Karl suggests we send them an application for institutional membership!

MID-CARBONIFEROUS BOUNDARY

The Subcommittee on Carboniferous Stratigraphy of C.I.M.P. will publish in early June 1982 a book entitled Biostratigraphic Data For a Mid-Carboniferous Boundary (edited by W. H. C. Ramsbottom, W. B. Saunders, and B. Owens). This volume contains 24 papers which were presented at the Subcommissions's meeting held in Leeds in August 1981. Only a limited number of copies (about 250) will be printed, and if you are interested you are advised to order your copy as soon as possible.

If you are interested in ordering a copy of this volume you may do so by writing to Dr. B. Owens, Institute of Geological Sciences, Ring Road Halton, Leeds LS15 8TQ. The cost will be 5 pounds (including postage). Your order should be accompanied by a cheque made payable to "Subcommission on Carboniferous Stratigraphy."

(Reprinted from C.I.M.P. (Commission Internationale de Microflore du Paleozoique) Newsletter 28, May 1982, which also gives the table of contents of the volume).

BULLETINS OF AMERICAN PALEONTOLOGY AND PALAEONTOGRAPHICA AMERICANA

The Paleontological Research Institution, of Ithaca, New York, is the publisher of two of the longest-running continuous monograph series in paleontology in North America, Bulletins of American Paleontology (since 1895) and Palaeontographica Americana (since 1916). Starting in 1981, the two series have shared a single, new format (8 1/2 x 11 inch pages, with two columns per page, and 7 x 9 inch plates). Both series publish longer manuscripts that use fossils as the data base, or that provide neontological information for application to paleontological problems. The two series differ only in periodicity of publication and pricing. Two volumes of the Bulletins are issued annually, and are currently priced at \$25.00 per volume; prepaid subscriptions are available. The monographs that appear in Palaeontographica Americana come out irregularly and are priced on a case-by-case basis; because of this the larger manuscripts usually appear in the latter series. Decisions on which series a manuscript will appear in are the Editor's.

We will accept manuscripts from anywhere in the world, but most of what we have published has dealt with Western Hemisphere paleontology. We tend to favor longer manuscripts that bring together large amounts of data between one set of covers; we believe that comprehensive, well-illustrated, in-depth treatments have long-lasting value to science. Authors of shorter manuscripts have access to numerous other journals. An approximate minimum size for manuscripts suitable for either monograph series is 125 double-spaced, typed pages. The reduction factor (number of manuscript pages required to produce a single printed page) is 3.6.

At present, manuscripts appear within about one year from time of acceptance for publication. All manuscripts must first pass through a peer-review

system. At present, authors are required to provide funds to cover costs of reproducing their illustrations. These costs to authors, as of August 26, 1982, are as follows:

per 7x9 inch photographic plate
(300-line screen).....\$70.00
per text-figure..... 25.00

These rates are of course subject to change at any time. Author's separates are extra, and are billed to the author at a pre-publication rate of 40% off list price.

Detailed instructions for preparation of manuscripts for either series are printed on the inside back cover of each issue. For additional information contact Peter R. Hoover, Editor, PRI Publications, Paleontological Research Institution, 1259 Trumansburg Road, Ithaca, NY 14850 (telephone: (607) 273-6623).

(Editor's note: I asked Dr. Hoover to write this article because I had heard that PRI is encouraging the submission of palynological and micropaleontological papers. Current policy of the AASP Foundation is not to accept theses or dissertations in the AASP Contributions Series. In his accompanying letter, Dr. Hoover wrote, "We have published several monographs on palynomorphs in the past, but they have not been as prominently represented as their importance in the field would dictate. Perhaps this article can help to turn that around.")

FORUM

Comment, by Norman F. Hughes

In AASP Newsletter 15/2, paper 5 (April 1982), Al Traverse follows up his clear exposition in Newsletter 15/1 of the Sydney (1981) business of the International Code of Botanical Nomenclature, with a defence of the Code in the same narrow sense as was favoured by the late Jim Schopf. In neobotany the Code is clear and effective; the proposals for amendment that are made at each Botanical Congress amount to little more than loophole warfare and they are left by the mainstream of botanists to the specialist protagonists among whom there are few casualties.

Bill Sarjeant (same page) is, however, absolutely right in maintaining that even our Fossil Plant Code warriors appear to be out of touch and that the effects of continuing adherence to such a code for all our data-handling arrangements for fossils are serious and far-reaching. I have written papers around many aspects of this topic for more than a decade; I published (1978, Taxon 27, pp. 497-504) a fairly detailed proposal to re-build a Code appendix for fossil plants with palynology particularly in mind. This appendix would have avoided all of Sarjeant's difficulties without complicating or damaging the main Code. I attended the Sydney meetings and I was invited to some meetings of the Fossil Plant Committee of which Al Traverse was secretary; as he recorded, my proposal was rejected on the recommendation of that Committee.

It is quite clear to me that the Fossil Plant Committee does not intend to introduce or to accept any significant changes in the field referred to by Bill Sarjeant. The Committee will meet no new challenge until the next Botanical Congress (Berlin 1987); it controls its own membership almost entirely (they were appointed at Sydney without any reference outside the Nomenclature Session of that Congress). By the current procedure it is the right of this Committee to preserve the status quo in this way.

Consequently if Bill Sarjeant and others seriously desire improvements, some other suggestions are needed.

1. The Sixth International Palynologic Conference (Calgary 1984) could promote a symposium on data-handling. The International Commission (ICP) could set up a working group now in preparation of such a symposium.
2. The Fossil Plant Committee of ICBN (names from Al Traverse in AASP Newsletter 15/1) could offer to hold a public discussion meeting at Calgary.
3. Individual palynologists could be invited to publish their suggestions, preferably in the form of positive proposals, as soon as possible.

I still have a few copies of my Sydney proposal which I shall be happy to mail on request, but I am anxious to record my hope that many other possibilities will be aired. General meaningful discussion is needed, as free as possible of the unnecessary constraints of the present Nomenclature Code which even in its Preamble (plus Principles and Articles 1-5) lays down the precise form of hierarchical classification to be used. Despite Al Traverse's spirited defence of the Code, "nomenclature" is not really the central problem because without the current priority principle it could be extremely simple; the main problems are caused by forcing records of fossils into styles of taxa set up for the present time, in lack of stability of taxa for search purposes, and in lack of organisation for use of emendations to taxa.

If enough palynologists will take an interest, there could be a simple arrangement that positively aided various kinds of data-handling initiatives, without in any way disturbing the past.

Comment, by Bill Chaloner: "Why beholdest thou the mote....?" department.

Richard Holloway criticises Brazier's Microfossils (July 1982 AASP Newsletter) in saying that "A short discussion would have been beneficial concerning the distinction between the spores which represent the sporophyte generation (Bryophyta) and those representing the gametophyte generation (Tracheophyta)." The discussion might have been beneficial, but not if it followed those lines! The spores of both bryophytes and tracheophytes are haploid, and in both groups they are the first phase of the gametophyte generation (and so can fairly be said to "represent the gametophyte generation"). If Holloway has a different version of this, can we hear it?

REPORT ON INQUA

The 50th anniversary meeting of the International Union for Quaternary Research (INQUA), XI Congress, was held August 1-9, 1982, at Moscow State University in Moscow, U.S.S.R. The Congress was attended by over 1100 participants from 45 countries including about 35 from the United States and Canada. Most participants stayed in the university dorm although some commuted back and forth from the more expensive Rossia Hotel across from St. Basil's Cathedral on the Red Square.

The abstracts of the Congress are published in 2 sets, 2 volumes each. One set is in English and the other is in Russian, the abstracts by Russian authors having been translated into English and the English language abstracts into Russian. An impressive number of monographs on the Quaternary geology and paleontology of the Soviet Union, commemorating INQUA, were available for purchase. Congress participants received a copy of The Quaternary System, Part 1, by E. V. Shantser (1982). The book is one of a series called Stratigraphy of the U.S.S.R. The second part of The Quaternary System is to be published soon. One of the commemorative volumes, Pleistocene and Holocene Palynology: Interunion issue, Ministry of Higher and Secondary Special Education (RSFSR), Leningrad State Univ., Leningrad, 168 p. (1981), contains papers on pollen analysis from the Middle-Russian uplands, Upper Volga, eastern Pamirs, central Caucasus, and Kirghiz as well as papers on marine palynology of the Barents Sea, White Sea, and Baltic Sea; diatom studies of the Baltic Sea and Norway Sea are also presented; of particular interest is a paper by I. F. Geleta and E. A. Spiridonova, "Attempt at Holocene Climatic Reconstruction Based on Palynological Data by Means of Multidimensional Statistical Analysis" which is essentially the same type of climatic reconstruction for European Russia that T. Webb and R. A. Bryson (1972, Quat. Res.) presented 10 years ago for the NE United States. Unfortunately, however, all of the books are in Russian and only a few of those I examined contained as much as a table of contents in English.

Over one-half of the 1002 talks during the 9-day meetings were presented in Russian by Soviets. The other talks were in English. Interpreters were present at most of the sessions and provided an English summary of each Russian talk or a summary in Russian of papers presented in English. Simultaneous translations were provided at some of the larger sessions of wider interest. The difficulty that emerged from all of these translations was that the interpreters were not scientists and were unfamiliar with the technical terminology.

At the opening session of the INQUA Congress, a pitch was made to formally recognize the Anthropogene Period, a term used by the Soviets, to replace the Quaternary. The suggestion fell on deaf ears.

As far as I can determine, 83 papers dealing with palynology were presented: 69 papers on pollen analysis, 10 on diatoms, and one each on dinoflagellates, nannoplankton, radiolaria, and grass

cuticles. Forty-five of these papers were by Soviets and given in Russian. American participants presenting papers in palynology were R. G. Baker, C. W. Barnosky, M. B. Davis, H. R. Delcourt, P. A. Delcourt, S. A. Hall, G. L. Jacobson, D. A. Livingstone, P. G. Palmer, and H. E. Wright, collectively representing one-fourth of the English language papers on palynology.

Fifteen separate 8- or 9-day field excursions were held, both before and after the Moscow meetings, in all parts of the Soviet Union. Two sets of guidebooks, one in English and the other in Russian, were available for the field excursions. Most of the field localities visited by participants had been previously studied by Soviet palynologists as well as by other specialists. The geologic sections examined, taken together, span the entire Quaternary Period and, at the sites in Central Asia, extend into the Pliocene and Miocene. I was on the Central Asian excursion along with 55 others of whom 20 were Soviets. With us were an interpreter who told us what the Russians were saying about the geology and an English-speaking tour guide representing Intourist, the official government agency that looks after foreigners, who arranged our day-to-day transportation and accommodations. On the road our group travelled in two buses, one for English- and the other for French-speaking participants; few of the Soviets knew either language. Although we were kept fully occupied each day with exceptionally interesting geologic localities, we managed to find our way to the market of each city we stayed in overnight: Tashkent and Samarkand in Uzbekistan and Dushanbe in Tajikistan. Late July was melon season, and the markets were filled with juicy watermelons and a smaller, white, very sweet melon that we later saw being carried in string bags by airline passengers going to Moscow from Dushanbe. Another highlight of our excursion was a city tour of Samarkand where we saw Tamerlane's mausoleum and other fantastic 14th century blue-tiled domed palaces and mosques.

Most of the Quaternary deposits we saw in Uzbek SSR and Tajik SSR were loesses which mantle the landscape in thicknesses of up to 60 meters. The natural outcrops of loess are scarp faces left by large slope failures. The investigated exposures, some containing up to 15 paleosols, have been dated by paleomagnetism and thermoluminescence and extend back as much as 2 m.y. Some Soviet geologists recognize a time-stratigraphic division "Eopleistocene" (epoch, in the American code) for some but not all areas of the Soviet Union. The term is applied unevenly. For example, in Byelorussia, the Eopleistocene is a post-Pliocene, pre-Pleistocene nonglacial interval; in Azerbaijan it is equated with the Apsheronian Stage which in turn is considered to be upper Pliocene. The Eopleistocene of Uzbekistan, where we were able to examine several stratigraphic sections, is regarded as extending from 0.5 to 2.5 m.y. In Tajikistan, however, the Eopleistocene is defined by paleomagnetic zonation, the base coinciding with the earliest Olduvai (1.8 m.y.) and the upper limit with the Pleistocene marked by the Matuyama-Brunhes polarity boundary (0.79 m.y.).

One spectacular locality was the Ak-Jar section along the Vakhsh River about 35 km from the Afghanistan border. The section is one of the thicker (780 m) and more complete late Neogene sections we visited and has been dated by paleomagnetism as Pliocene, Eopleistocene, and Pleistocene. Pollen studies by A. M. Bronnikova (from Dushanbe and with us in Tajikistan) and L. N. Yershova show a decrease in species and abundance of deciduous trees and pine at the end of the Pliocene; the Eopleistocene sediments are dominated by pollen from herbaceous plants. The declining tree abundance is interpreted by Bronnikova and Yershova as due to increasing aridity from Pliocene to Pleistocene time in southern Tajikistan.

Some of the Eopleistocene and Pleistocene loesses in Tajikistan have been analysed for pollen. In one detailed study of a short section, a red paleosol was found to contain an abundance of Pinus and Tilia pollen; the loess immediately below the paleosol was dominated by herbaceous pollen types. The interpretation presented to us was that the soil-forming period was characterized by forest vegetation and represents a moist episode while the non-paleosol loess with lesser amounts of arboreal pollen represents an arid steppe period. However, Soviet stratigraphers with us disagreed with this pollen-based interpretation. They equated soil-forming periods with arid instead of moister times. B. Urban (Bonn, FRG) and I felt that the higher frequencies of Pinus and Tilia might be a result of pollen destruction accompanying pedogenesis, a possibility not considered by the Soviet palynologists.

The Uzbek and Tajik loesses contain several in situ Paleolithic archaeological sites. One of the more extensively studied sites, Karatau I, recently reported in Scientific American (1980, v. 243, no. 6), has produced 116 artifacts and is provisionally dated 200,000 years. We were scheduled to visit Karatau I, some of the participants having signed up for this excursion principally for the opportunity to inspect the site. At the last minute, however, we were unexplainably denied access to it, a great disappointment to us all and an embarrassment for our Soviet excursion leaders. The episode reminded me of the U.S. Government's refusal to allow Soviet geologists to visit the Lindenmeier Site during the 1965 INQUA Congress in Boulder, Colorado.

One benefit of attending INQUA in the U.S.S.R. was the opportunity to see a little of how Soviet science operates. On the field excursion I got the impression that there is a great deal of disagreement on such basic matters as the origin of loess. Also, even though the Soviets publish extensively, there seems to be some absence of communication among geologists of separate regions in the Soviet Union. The training of many Soviet palynologists is different from that received by Westerners. Many of the provincial geological surveys and scientific institutes employ palynologists who have gone through a 5-year university program in geology or botany with a specialization in palynology. At the end of five years they are assigned to an agency where they perform service work in biostratig-

raphy. A few individuals continue their studies and obtain advanced degrees. Thus, there are two separate levels of training to be found among Soviet palynologists. Regardless, the number of reports published by Soviet palynologists is impressive. A recent bibliography (M. M. Pakhomova and N. B. Klopotovskaya, 1980, *The Cenozoic Palynology of the Middle Asia Caucasus; History and Annotated Bibliography, 1931-1975*: "Donish" Publishing House, Dushanbe, Tajik SSR, 235 p.) contains 407 references on Cenozoic palynology of Central Asia; 173 papers are listed for the period 1970 to 1975; all are in Russian.

Overall, the U.S.S.R. INQUA meetings were a success. It was an opportunity to meet many Soviet geologists as well as specialists from other countries, including several representatives from the People's Republic of China, among whom was a pollen analyst. The field excursions were valuable for all although I understand that some of the excursions were not as well organized as the one to Central Asia. The next INQUA will be held in Canada. The date is yet unannounced but will probably be in either 1985 or 1986.

Stephen A. Hall

BOOK REVIEWS

How to Assess Maturation and Paleotemperatures.

SEPM Short Course Number 7, 1982, 289 p. \$7.00. Available from Society of Economic Paleontologists and Mineralogists, P.O. Box 4756, Tulsa, OK 74104.

Sedimentary organic matter is divisible into components which are either soluble or insoluble in organic solvents. The soluble fraction is usually analysed by chemical means. Insoluble material, or kerogen, is widely studied both chemically and under the microscope. In the context of organic maturation and petroleum generation, all analytical methods have their advantages and disadvantages. Many types of insoluble matter can, for example, be identified by transmitted light microscopy, but the source potential significance of their occurrence can only be determined indirectly from comparisons with chemical data on a large number of samples. Optical observations may mislead, especially if the kerogen is largely amorphous and finely divided, but it is usually possible to ascertain whether a rock which now shows potential for gas may have generated oil at some stage in its history. Chemical methods cannot demonstrate this because they only give information on the present state of the organic content of a sample.

Conclusions on maturation level and source potential should, therefore, be based on data derived from as many analytical methods as possible. This point is effectively made by all the contributors to How to Assess Maturation and Paleotemperatures, a volume which is, in fact, concerned with rather more than the title implies. A large part is specifically devoted to the identification of different kinds of dispersed particulate organic matter (phytoclads). The six papers included cover transmitted light (F. L.

Staplin, S. A. J. Pocock), reflectance (W. G. Dow and D. I. O'Connor) and fluorescence (P. van Geijzel) methods of microscope analysis, a summary of geochemical techniques (C. N. D. Milner), and an approach to basin studies from the viewpoint of petroleum origin and accumulation (D. H. Welte and M. A. Yuekier).

A short introduction by Staplin (just over 2 pages), and a list of some recent references (1 1/2 pages) is followed by an equally short, though informative, article by the same author on the determination of thermal alteration index from the colour of pollen and spores. Emphasis is placed on the need to standardise techniques and to correlate results with maturation indications arrived at by other means. Included is a revised and corrected version of a text-figure no doubt familiar to many AASP members because it appeared in the first volume of Palynology (1977, p. 17, fig. 10).

The purpose of Pocock's article is to introduce the reader/course participant to the different kinds of phytoclasts that are identifiable under a microscope in transmitted light. In terms of number of pages, this is by far the longest paper in the volume, but the text is double-spaced typescript, and of the 118 pages, 12 are photographic plates with explanations on the facing pages. There are also two appendices, one a brief discussion (just over 1 page) of a classification of sedimentary organic matter by Th. C. Masran and Pocock, and the other, 12 pages devoted to techniques of sample processing by L. A. Dancy, Y. V. Hardy and Pocock.

In Pocock's solo contribution, particulate organic matter is categorised as structured, more or less unstructured or amorphous, and charcoal. The discussion of structured material commences with a brief introduction to the plant kingdom. This is followed by sections of varying length, and on an elementary level, devoted to aspects of the morphology of selected angiospermous, gymnospermous, lower vascular and non-vascular plants. The illustrations are nearly all taken from botanical text-books and other published works. The angiosperm and gymnosperm pollen are, for example, from Wodehouse's Pollen Grains (1959, Hafner Publishing House, New York). All but two of the photographic plates have been published recently elsewhere (Masran and Pocock 1981, in J. Brooks (ed.), Organic Maturation Studies and Fossil Fuel Exploration, Academic Press, London). Of the exceptions, one shows scanning electron micrographs of Jurassic fungal remains and possible evidence of their action. The other is stated to comprise photographs of bryophyte spores but in fact also includes examples of the Mesozoic genera Cerebropollenites and Exesipollenites, generally thought more likely to be gymnospermous than anything else. The reader is asked to compare both with the figures of the spore of Distichium montanum, but as indicated in the text, Cerebropollenites resembles Trematodon ambiguus spores much more closely. The implication is that these Mesozoic forms could be bryophytic after all. However, a detailed comparison of the morphology of the miospores is required if other

palynologists are to be convinced of this. In any event, it should be recalled that several years ago T. M. Harris found Exesipollenites s.l. in the flower of a Jurassic bennettitalean (Harris 1974, Palaeontology 17, 125-148). Pocock also notes (p. 54) that Spheripollenites, a palynomorph which is morphologically similar if not exactly comparable to Exesipollenites, is generally referred to as a monoporate angiosperm pollen. This is not so; positive evidence of angiospermous affinity is wanting.

Knowing how difficult it is to determine to which part of a plant a microscopic fragment of tissue belongs, I question the value of the approach to plant morphology that Pocock adopts. Perhaps some references to the plates would have made the discussion on structured material (just over 46 pages) seem more relevant to the practical problems which the microscopist faces when attempting to categorise dispersed organic matter. Most of the text-figures are alluded to, but their numbering is decidedly curious. For example, the first (on p. 16) is a flow diagram of "probable" phylogenetic relationships among the main groups of plants, but it retains its original designation "Figure 28-3." The second (on p. 21) is figure 1, a "Semidiagrammatic representation of a one-year-old stem of Liriodendron." The illustrations on pages 29 and 37 are not labelled 4, 7 and 8 as, clearly, they should have been; two are numbered 23, and figure 5 lacks an explanation. The illustrations of pollen from Wodehouse and spores from Nair (1965, not included in the references), and the collections of photographs of bryophyte spores and fungal remains are not given plate numbers. On the other hand, the illustrations which follow the references are labelled as plates even though the first three are diagrams which would have been better placed within the text. Reference is made on page 88, for example, to an "accompanying chart" which turns out to be Plate 1, 19 pages further on.

I found the section on amorphous matter more helpful, though the use of colour in separating material of marine from non-marine origin is limited, particularly if it has been subjected to a certain amount of thermal alteration. The identification of all angular organic fragments that are opaque in transmitted light as charcoal is worrying because it is my experience that much of this material can have the properties of the coal maceral vitrinite. The decision to separate charcoal from semi-charcoal on the grounds that the latter shows translucency around thin edges must also be questioned.

The bulk of the remainder of the volume is devoted to aspects of organic matter analysis about which many palynologists have some knowledge, but only a few have practical experience. In a well organised paper by Dow and O'Connor, procedures for reflected light microscopy are outlined. Emphasis is placed on the need for practical experience in the identification of vitrinite. It is usually important that primary, and not caved, recycled or vitrinite-like material is measured, otherwise spurious maturation determinations will be

produced. Clearly, as in the case of transmitted light analysis, it is not possible to become a competent reflectance microscopist in a matter of days or even weeks; a good deal of practical experience is required. Since there are no photographic illustrations, a beginner would either require additional literature or instruction at the microscope before being able to generate reliable data.

Although concerned primarily with vitrinite reflectance, there is also a section in this paper (about 5 pages) on the identification of kerogen types in reflected light. Coal petrographic terminology is employed; recognisable algal structures, spores, pollen, cuticles and resins are thus referred to the exinite maceral group. Dow and O'Connor note that exinite is equivalent to the algal and herbaceous kerogen of palynologists. The word "herbaceous" should not, however, be used in this way because, as all gardeners must surely know, it means having the characters of an herb - a plant with no persistent parts above ground (as opposed to shrubs and trees).

A substantial contribution by van Gijzel follows (57 pages including 5 plates). Its title "Characterization and identification of kerogen and bitumen and determination of thermal maturation by means of qualitative and quantitative microscopical techniques" suggests a comprehensive review of the state of the science, which indeed it is. It overlaps to varying degrees, therefore, the subject matter of the preceding papers, particularly that of Dow and O'Connor. However, the value of fluorescence microscopy in maturation and source potential studies and for identifying bitumens and crude oils is stressed.

Unlike the two preceding contributions, but in common with Pocock's, Milner aims his paper more obviously at course participants. It is a useful summary of geochemical methods of analysing sedimentary organic matter and interpreting maturation level and petroleum potential. The textual presentation is simple and direct, and amply supported by well executed figures of a size and clarity that would serve as a basis for the production of high quality 35 mm transparencies. No doubt the author used a set when he presented his part of the programme.

In the final paper by Welte and Yuekler, a conceptual model is proposed to analyse the complex of dynamic processes of petroleum formation and occurrence in sedimentary basins. While it perhaps puts microscopic and geochemical data into perspective, in the context of the theme of the volume, some of the discussion seems out of place.

Overall, this publication is not quite the valuable handbook I had hoped for. Although much of the subject matter is relevant and useful, integration of the individual contributions aimed at removing some of the repetition and the inevitable terminological difficulties would have helped the reader/user. Its general appearance could also have been improved if the format of the papers had been standardised. As it is, the type-face and line

spacing varies from one article to the next. The quality of the figures is extremely uneven because many have been "lifted" from previously published articles with little or no alteration. Typographical and other minor errors are common in places. There are references to work done (e.g. "as demonstrated by Masran in the Florida Bay study" (p. 75)) and publications (e.g. Ehrendorfer 1971 (p. 37), Schmitz 1906 (p. 70), Masran and Pocock 1977 (p. 75)) which are not listed in the references. It is noted that diatoms are excellent markers but have only been preserved in "sediments with an abundance of free silicone" (p. 172). Some of these at least would have been spotted by an editor.

It is not made clear for whom the course was organised. I suggest that it was probably directed at petroleum geologists with no specialist training in methods of assessing source potential and maturation. It may also have been designed for those geochemists and microscopists who wish to know more about related fields of activity beyond their own areas of expertise. Although parts of the volume comprise unabashed rehash of readily available recent publications and review aspects of the subject that have already been reviewed previously on numerous occasions, there is some fresh information between its covers. It is likely to be most useful to those who do not have ready access to the literature, are new to the subject, or are non-specialist geologists in need of a reasonably comprehensive reference to help them understand and make better use of source potential and maturation data.

D. J. Batten

Paleobotany. An Introduction to Fossil Plant Biology by Thomas N. Taylor. McGraw-Hill, New York, 1981. 590 p. \$29.95.

Tom Taylor's new textbook in paleobotany is an excellent survey of fossil plant biology that for the first time includes--even integrates--palynology rather than merely mentioning it incidentally or subordinating it to the appendix. It is refreshing to read a paleobotanist who recognizes that palynology is an important or even essential subdiscipline of paleobotany. No student who uses this text will ever again complete a university course on fossil plants without exposure to palynomorphs and without realizing their significance in putting together the complete picture of fossil plant biology.

In my opinion, Taylor's effort "to provide a reasonable balance in subject matter and detail for all areas of paleobotany and major groups of plants" is an overwhelming success. He achieves his objectives admirably, and the result is a book that deserves to be in every palynologist's library (or restroom, if like me that's where you do your contemplative, uninterrupted reading).

After a somewhat awkward "Introduction," the remaining chapters of the book consist of thorough yet concise, systematic reviews of each major taxonomic group of fossil plants. This compilation

is clearly the highlight of the book and the place where its lasting value will be recognized. Although Taylor informs the reader at the end of Chapter 1 that his emphasis in the rest of the book will be "on the origin and evolution of individual groups of plants rather than on a discussion of floristic changes through time," Chapter 2 is entitled "Precambrian Biology," and the remainder of the chapters follow roughly in stratigraphic succession. Thus, palynologists interested only in say the lower Paleozoic or the Neogene need read only one or two pertinent and concise chapters without fighting through a taxonomic maze.

With few exceptions the chapters on major groups are masterfully done. The recent literature is adequately reviewed and current opinions and interpretations are accurately presented. The book steers a careful course around some controversies while attacking others straight on. Overall, I think the author gives a fair treatment to opposing viewpoints. Each chapter is heavy on description but light on anatomical minutia. A nice added feature throughout is photographs of prominent paleobotanists from the past; putting faces with names sometimes personalizes discoveries. Another welcome feature is TL and SEM photos of pollen grains and spores dispersed through the whole book.

There is an excellent emphasis throughout the book on the necessity of using both geological and botanical principles for a complete analysis of fossil plant communities. However, the author seems to forget his own advice when he states that "obviously" changes in physiological tolerances are reflected by the presence of mixed paleoclimatic indicators in single Tertiary floras. What ever happened to the standard explanations of topographic relief and transport? The latter at least is often clearly evidenced in the rocks and just as often overlooked by paleobotanists who do not use both geological and botanical principles.

The book closes with a 55-page chapter-by-chapter bibliography, a glossary, two appendices, and an adequate index. The glossary is a fine idea but needs some serious revisions. There is an overabundance of descriptive morphological terms for pollen grains and spores, many of which were never referred to in the text. Appendix 2 is an incomplete "Basic Palynological Terminology" including most pollen and spore morphotypes but inexcusably leaves a blank half page while excluding porate and colpiate grains.

Although I received Taylor's book with open arms, my glowing endorsement did not start with the first reading. Only as the contents of the book were digested, did its true merits become realized. A quick perusal of the first chapter might even leave some palynologists permanently turned off. Although the book, whose author is himself an AASP member, begins gratefully acknowledging help from no less than 16 members of AASP, it contains some rather startling statements regarding palynology. Taylor gets off to a very rough beginning by making such an inexcusable and glaring (to palynologists anyway) misstatement as "Leaves are the most commonly preserved plant

parts...." (p. 3). The same error is repeated on page 2 and page 469. For every fossil leaf preserved in the record, I suspect there are several hundred thousand or more pollen grains and spores! Taylor does put things in proper perspective finally on p. 15 when he says, "Spores and pollen grains are represented in the fossil plant record in great abundance." But immediately after this correction of the facts, Taylor stumbles with another unfortunate statement, "Frequently, even when there is no evidence of any other part of a plant in sediments, spores and pollen grains are quite obvious" (emphasis mine). All paleobotanists must certainly be aware (and all cross-eyed palynologists can unequivocally confirm) that, except for an occasional megaspore, the bulk of the palynological record is far from "obvious." That's why we have to chase the little buggers down with high powered optics! But I'm getting picky.

In the preface (p. xii) Taylor may affront some palynologists when he implies that palynostratigraphers think of palynomorphs as biologically meaningless fossil objects while in his book he "views the grains as component parts of the life history of an organism." To those few palynologists who are accurately described here as approaching palynomorphs as mere index objects, the rest of the book is a must. Those "morphoentities" do take on a whole new meaning in the context of whole-plant biology.

I could go on by criticizing the book for referencing figures far out of sequence (the first figure 1-1A appears on p. 3 but is not referred to until page 14); for what seems to me an out-of-place, detailed description of paleobotanical laboratory techniques in the introduction (either the appendix or a separate chapter would be more appropriate); for inaccurate or over-simplified definitions (conglomerates are not "rocks with variously sized particles"); and for a very elementary discussion on depositional environments and plant taphonomy; but the book deserves better than to emphasize its poorer qualities. These kinds of things can be cleaned up in the next edition.

The principal merits of the book are that it provides ready access to information which is currently either inaccessible, diffusely distributed, or so brand new that it has not yet been picked up by those like me who are behind in the journals. And, it incorporates palynology--throughout! Palynologists who might potentially make substantial use of the knowledge compiled here cannot afford to be without a copy. Prior to this book, Tom Taylor had probably contributed most to palynology by authoring several papers on in situ spores. Now he has made a major contribution by ensuring that the next generation of paleobotanists will begin their training knowing the importance and significance of palynology. We owe Tom a debt of gratitude which will not be paid by rushing out and buying a copy of his new book. But--do it anyway; he can use the royalties to make the next addition even better.

Lanny H. Fisk

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

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

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

Institution	Degree	Beginning date	Completion date
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What is your background in palynology?

Professional experience:

Previous awards or honors:

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

Title of proposed investigation:

Project supervisor:

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

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

yes _____ no _____

Date:

Applicant's signature:

PART B

Endorsement by Faculty Supervisor

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

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

2. Did idea for project originate from student? yes _____ no _____

3. Can you verify the student's statements as to other awards, honors, or financial aid received or applied for? yes _____ no _____

Comment:

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

Faculty supervisor's name:

Signature:

Date:

Position:

Institution:

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Please return parts A and B to: Mr. Harry Leffingwell, Union Oil Company of California, P.O. Box 76, Brea, California 92621.



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THE ABSTRACT SHOULD NOT CONTAIN THE NAMES OF NEW FOSSIL TAXA NOR OF NEW STRATIGRAPHIC UNITS

Speaker

Oral Presentation

☐

Poster Session

☐

PHYLETIC GRADUALISM OR PUNCTUATED EQUILIBRIA: THE EVIDENCE FROM FOSSIL POLLEN
OF THE JUGLANDACEAE

Nichols, D. J., U.S. Geological Survey, Denver, CO 80225

The currently widely-accepted neo-Darwinian