



# AASP NEWSLETTER

N. O. FREDERIKSEN, EDITOR

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OCTOBER 1983

## NEW BOARD OF DIRECTORS

Following are members of the new AASP Board of Directors, who will take office in October at the Annual Meeting in San Francisco:

President: John A. Clendening

President-elect: Vaughn M. Bryant, Jr.

Secretary-Treasurer: Kenneth M. Piel

Managing Editor: Douglas J. Nichols

Directors-at-large: Lucy E. Edwards (1)

Virgil D. Wiggins (1)

James E. Canright (2)

Jocelyne A. Legault (2)

(1) Newly elected, serve until 1985

(2) Elected last year, serve until 1984

## THANKS AND ACKNOWLEDGMENTS

This issue of the Newsletter is my last as editor. I have really enjoyed the past two years; it has been a marvellous opportunity to follow the activities and thoughts not only of the Association but of palynologists in general. If I have kept the membership informed, amused, perhaps on occasion outraged, then I am well satisfied. The July and October 1983 Newsletters were printed and mailed by Vaughn Bryant at Texas A&M to reduce printing and postage costs; thank you very much, Vaughn.

Finally, I want to thank all of the following people in Reston who spent hours and hours sorting address labels, sticking the labels on Newsletters and on envelopes, stamping the envelopes ("printed matter," etc.), stuffing the envelopes, and putting on the postage stamps, for the past couple of years: Cathy Ager, Tom Ager, Cynthia Crampsey, David Dowell, Lucy Edwards, Orrin Oftedahl, Norrie Robbins, and Effie Shaw.

The new AASP Newsletter Editor is Robert L. Ravn, of Amoco Production Company, P.O. Box 50879, New Orleans, LA 70150. Please send your news items and other Newsletter correspondence to him. Robert, I hope you receive the same outstanding cooperation and support from AASP members that I have enjoyed for the past two years. Happy newslettering!

Norm Frederiksen

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

## 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. Please notice the following features of the Dues Notice:

Advance Payment.--On the Dues Notice it says "All dues may be paid up to 3 years in advance." The Board of Directors urges members to do so; there are several distinct advantages. First, you don't have to remember to pay your dues every year; paying in advance saves delinquent members from being sent reminder letters and saves the Secretary-Treasurer a lot of time. Second, for foreign members, paying several years at a time saves money because you have to pay the fee for converting your currency to dollars only once every several years.

Voluntary Donation to AASP Student Scholarship Fund.--Last year, when the Student Scholarship Fund was established, the Board of Directors decided to ask for donations to the Fund. As of the mid-term AASP Board meeting in April, 1983, 20 contributors had donated amounts to the Fund ranging from \$1.00 to \$50.00 (the average was \$11.55); total donations as of April were \$231.00. Good show! You may remember that in 1983, as we plan to do every year, two \$250 Student Scholarships were awarded. Further donations in 1984 are certainly welcome.

## AASP STUDENT SCHOLARSHIPS

For the second year, AASP plans to award two \$250 student scholarships to support studies in palynology. Ordinarily the scholarships are 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 the Newsletter. Note that the applications must be received no later than February 1, 1984; awards will be announced by May 30. Last year about half a dozen students applied, so if you are a good student and have a worthwhile project, you have a reasonable chance of winning a scholarship. If you are a professor, please call these scholarships to the attention of your students.

#### STRATIGRAPHIC PALYNOLOGIST NEEDED

Join an experienced team of three palynologists who provide expertise in unraveling stratigraphic problems of all scales in potentially all parts of the Phanerozoic column and all parts of the U.S. Five years' post doctoral industry experience is highly desirable. The expertise of SOHIO's geoscientists plays an increasingly important role in our expansion plans. Send your resume for immediate and confidential consideration to: Jack Alonete, Sohio Petroleum Company, S015, 100 Pine Street, San Francisco, CA 94111. EOE/mfhv.

#### CONSULTANT AVAILABLE

John Grayson has taken early retirement from Amoco Production Company and, effective October 1, 1983, will be available as a private consultant. With more than 30 years of experience in palynology and organic petrology (visual analysis of kerogen, vitrinite reflectance, palynomorph translucency, and microspectrofluorescence), he wants to apply that knowledge to the practical problems of petroleum exploration. Grayson's address is 4149 South Sandusky, Tulsa, OK 74135. Tel.: (918) 627-1516.

#### QUESTIONNAIRE ABOUT ANNUAL MEETING COSTS

Vaughn Bryant reports that more than 200 replies were received to his questionnaire about costs of AASP Annual Meetings. He wants to thank everybody who took the time to fill out the questionnaire, and he points out that the responses and the whole problem of Annual Meetings costs will be discussed at one of the Board meetings at the San Francisco convention. If you are interested in this question, please attend the Board meeting and put in your two cents' worth.

#### TRAVEL GRANTS FOR AASP BOARD MEMBERS

You will remember that at the Spring 1982 Board of Directors meeting, the Board voted to establish a \$1500 travel fund to help Board members lacking adequate outside support to attend the Board meetings, such grants to be limited to \$300 per annum per person. At the Spring 1983 Board meeting, the following guidelines were established:

- 1) Applications should be submitted to the President prior to January 1 of each calendar year; however, if funds remain after the initial commitments, applications will be considered up to the time of the Annual Meeting.
- 2) If requests exceed \$1500, the available funds should be divided equally among the applicants.
- 3) The President shall acquire the Board's approval before commitment of funds to any applicant.
- 4) The fund shall be operated on a good faith basis.

#### HOUSTON COMMITTEE FOR ORGANIC PETROGRAPHY

An informal Houston Committee for Organic Petrography has been formed to begin discussions on topics having to do with organic petrography and to explore the possibilities of creating a formal organization for professional organic petrographers and people working in related sciences. Objectives of the Committee are:

- o To have a forum for discussion of various problems in organic petrography.
- o To solve several practical problems, like computerization of microscopic analysis, classification systems for organic matter and bitumen, standardization of techniques.
- o Teaching organic petrography by organizing seminars, short courses, symposia.
- o To publish a newsletter containing minutes of meetings, reports of working groups and information on literature. We could publish manuals, guides, and papers presented at our meetings.

Before taking further actions, the Committee would like the opinion of colleagues in and outside of Houston. A questionnaire was mailed to many North American scientists; if you didn't get one, please write for a copy. Further, the Committee is scheduling a meeting for Fall 1983 in Houston to discuss results of the questionnaire, to plan additional activities, and to have a scientific session. For a copy of the questionnaire and information about the meeting in Houston, write: Dr. Pieter van Gijssel, Getty Oil Co., Exploration and Production Research, 10201 Westpark Dr., Box 42214, Houston, TX 77042.

#### SAMPLES CONTAINING TRIPROJECTACITES

Michael Farabee writes: I am working on an interdisciplinary Ph.D. in Geology and Botany at the University of Oklahoma. My dissertation will be on the fossil pollen group Triprojectacites (=Aquilapollenites) from both stratigraphic and botanical perspectives. The project I am planning will in part involve same grain LM, SEM and TEM studies of as many species of Aquilapollenites as possible in order to document the variation and morphologic features characteristic of the type. While same grain LM, SEM and TEM investigations will provide a wealth of information, the success of this project will depend on the availability of triprojectate-containing samples for investigation. I would greatly appreciate the loan of any samples (processed or unprocessed) which might contain triprojectates, especially from the Alaskan and Canadian areas (although at this stage of the project, any material is most appreciated). I am also hoping to obtain some material from the Asian areas of the range, and would appreciate any leads toward obtaining such material.

Farabee's address is: Dept. of Botany & Microbiology, University of Oklahoma, 770 Van Vleet Oval, Rm. 135, Norman, OK 73019.

#### PRINTING OF STRATIGRAPHIC DISTRIBUTION CHARTS

Many charts showing the stratigraphic distribution of a group of fossils are wider than they are high; they are rotated  $90^{\circ}$  in order to fit them onto a normal page. Standard procedure in the printing industry is to rotate the master  $90^{\circ}$  to the left; then, the legend below is printed along the spine, and the book must be rotated slightly to the right to facilitate reading.

Many drafted charts, however, have writing in two mutually perpendicular directions oriented such that the chart must be rotated slightly to the right for proper reading. If the master of such a chart is rotated  $90^{\circ}$  to the left, it will need more than  $90^{\circ}$  rotation to the right to facilitate its reading. In fact, it is easier to turn the book upside down. The simple solution is to:

1. either redraft the masters, to take into account the compounding effect of a  $90^{\circ}$  rotation to the left.
2. or rotate the original master  $90^{\circ}$  to the right, even if that goes against the habits of the printer.

Examples of such upside-down charts are common in the literature, even if there is no good reason for the phenomenon: it certainly does not make their reading any easier.

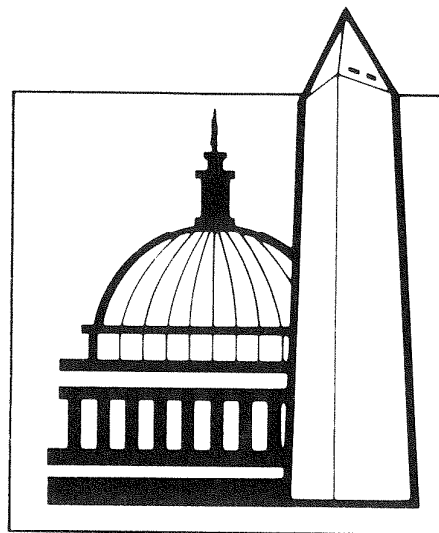
In our own bosom, I may refer to the tables in AASP Contrib. Ser. 5B (p. 138-141, continued correctly on p. 142), and AASP Contrib. Ser. 10 (p. 123-133). When I brought this to the attention of our editor, Vaughn Bryant, he indicated to me his preference to continue his  $90^{\circ}$  laevorotatory practice. If anyone shares my dislike of these topsy-turvy tables, and would like to stop the sinister intentions of our editor, please indicate your preference to the Editor of this Newsletter, who will tabulate the results in the next issue.

Jan Jansonius

#### DEATH-SNEEZE

A novel explanation for the extinction of dinosaurs has recently been offered by R.H. Dott in Geology, February 1983. During an attack of asthma several years ago, Dott recalled that flowering plants appeared first in the Late Mesozoic just before the demise of the dinosaurs. As he asked in his book with R.L. Batten (Evolution of the Earth), "could the appearance of many pollens to which dinosaurs had not previously been exposed have produced violent allergic reactions that culminated in wholesome death by hay fever?... We might say that mammals were flower children, while blossoms were sprung on the dinosaurs too late in their racial life so that they, poor things, sneezed to extinction." Dott recalls a similar hypothesis independently offered by A. Hallam that flowering plants may have been so upsetting to dinosaur digestive systems that the great reptiles were struck down by acute constipation!

From: Episodes, Vol. 1983, No. 2, p. 30 (sent in to the Newsletter by Jim Canright).



#### 1984 ANNUAL AASP MEETING FIRST ANNOUNCEMENT

The 1984 Annual Meeting of AASP will take place in Arlington, Virginia, on October 17-20. We expect this to be an outstanding meeting, not only scientifically but also because Arlington is only a few minutes away from downtown Washington, D.C., one of the most beautiful, interesting, and entertaining cities in the country. Endless opportunities exist for attendees and their spouses to enjoy the city before, during, and after the meeting. The annual field trip will be to classic fossiliferous Cretaceous and Tertiary localities of the Maryland and Virginia Coastal Plain.

If you are a student, or have students working under you, remember that the Association does encourage students to participate and give talks; one form of encouragement is the presentation of the L.R. Wilson Award for Best Student Paper.

#### Projected symposium topics:

1. Palynological data handling, possibly including a workshop with demonstrations.
2. Long-distance palynological correlation and (or) relatively broad-scale biogeographical-paleoclimatic reconstructions.
3. Microplankton morphology and evolution.
4. Late Cenozoic palynology.
5. Biostratigraphy.
6. Kerogen analysis.
7. General papers.

For further information contact the meeting chairperson:

Norman Frederiksen, U.S. Geological Survey, 970 National Center, Reston, VA 22092. Phone: (703) 860-7745.

#### ACRITARCH NEWSLETTER

The first annual issue of Acritarch Newsletter has been published by the CIMP Subcommittee on Acritarchs. This issue lists names and addresses of acritarch workers in many countries and provides references to recent papers on the subject of acritarchs. For a copy, write the editor: Kenneth Dorning, Pallab Research, International Palynological Consultants, 58 Robertson Road, Sheffield S6 5DX, England.

#### INDIAN CRETACEOUS SYMPOSIUM

Proceedings of the Indian Association of palynostratigraphers symposium on the Cretaceous of India - palaeoecology, palaeogeography and time boundaries - are in press and are expected to be published by August 1983. Anticipated price per copy is Rs. 300 or US \$60, including ordinary postage. Copies of this publication may be booked with Dr. H.P. Gupta, Business Manager, Indian Association of Palynostratigraphers, Birbal Sahni Institute of Palaeobotany, P.O. Box 106, Lucknow 226 001, India.

#### FORUM

Comment, by Alfred Traverse

Despite my frequent appearance in this column lately, perhaps I could be allowed a few lines more, in order to comment about "sporomorph" and "palynomorph". As the writer of the definitions of these two words in the 1972 AGI Glossary (kept unchanged in the present edition, for which the palynological editor is R.M. Kosanke), I have thought quite a bit about these terms. It seems to me that clearly both have a place and that neither should be merged in the other. We need a less bulky term for "spores and pollen". John Grayson's "polospores" never caught on. Joe Guennel's "miospores" has two drawbacks: (1) the 200 micron limit often doesn't work well, and I don't like to exclude megaspores anyway. (2) Miospores is a later homonym of the biologically important and well established "meiospore". "Sporomorph" does very nicely. Fossil pollen grains are, after all, microspore walls. On the other hand, we also need an all-inclusive term for spores/pollen, chitinozoans, dinoflagellate cysts, the works. "Palynomorph" is handy here, and that's the way most palynologists use it. I once had a letter from E.D. Zaklinskaya, protesting the use of "palynology" for anything but, as I would say, sporomorphs. Literally, she was quite right; the Greek word behind "palynology" refers to pollen, not scolecodonts. I presume that a similarly purist view would object to "palynomorph" when applied to dinoflagellate cysts, but paleopalynology is now almost universally understood to mean study of all of the acid-resistant, organic-walled microscopic entities (ca. 5-500 microns) that turn up in macerations of sedimentary rock. That excludes nanofossils and diatoms but includes most megaspores. All sporomorphs are palynomorphs, but not all palynomorphs are sporomorphs!

Dr. Frederiksen has asked me to comment also on a question debated intramurally at USGS: whether the terms "sporomorph" and "palynomorph" should be used for taxa, or for specimens, or for both. I never questioned when writing the abovementioned definitions for AGI that I was defining a term for specimens. Thus, one could speak quite properly of "sporomorph taxa" because a sporomorph is a specimen. However, "sporomorph taxon" or for that matter "sporomorph" used (incorrectly, in my opinion) as a synonym for "sporomorph taxon" gets one into a knotty philosophical problem that I used to debate by the hour with J.M. Schopf. Schopf vehemently asserted that every so-called spore or pollen (=sporomorph) taxon really is a taxon of whole plants: the spore or pollen grain is merely a typifying element for the whole plant. Thus, Jim urged that there is no such thing as a spore or pollen taxon, and he would surely feel the same way about sporomorph used to mean such a taxon. I always viewed this opinion of Schopf's as quixotic, but he was a taxonomist's taxonomist, and there are others who share this idea. I mention the matter only to emphasize how complicated this seemingly simple question is. In any event, palynologists sometimes do speak loosely and informally of sporomorph as equivalent to spore or pollen form-taxon: "Sporomorphs such as Densosporites and Corollina...." However, I believe it is better to avoid this and refer to Densosporites very explicitly as a form-genus. Sporomorph should be used for less precise reference to specimens: "Many sporomorphs were encountered on the slide...." Of course, it is unreasonable to expect to be rigorous about this in practice, and the subject is now even more complicated: Under the new (Sydney) ICBN, the type of Densosporites will be a specimen, that is a single spore! This means that even the form-generic concept for Densosporites will be tied to a single specimen, not a population (the type species) as before. Obviously, even the concept of the form-genus is somewhat affected by this big change in typification. The nasty problem of neotypification will come up certainly--where is the type specimen of the type species of Densosporites? But to get back to the main point--I'd like to retain both "sporomorph" and "palynomorph" and to use each for specimens, free of the various complications inherent in the taxon concept.

P.S. I just read Doug Nichols' statement in the July Newsletter that the definition of "sporomorph" in the AGI Glossary is wrong. He appeals to original sources. The meaning of common terms depends, however, on usage. Nichols himself uses "palynology" in the broader, now accepted sense, not per Hyde & Williams 1944. Whether a definition of a common term agrees with an Erdtman publication of 40 years ago is of interest but is not compelling.

#### BOOK REVIEW

Ferns and Allied Plants, With Special Reference to Tropical America, by Rolla M. Tryon and Alice F. Tryon. Springer-Verlag, 175 Fifth Avenue, New York, NY 10010. 857 p., 2028 figs. \$148.00. ISBN 0-387-90672-X

This handsome volume presents an authoritative compilation of data on ferns and other nonseed plants, including their systematics, distribution, ecology, and cytology. Of special interest to palynologists is the detailed treatment given to spores, which are illustrated by excellent SEM micrographs.

Covered are 122 genera in 24 families of ferns, and one genus each in the Psilotaceae, Equisetaceae, Lycopodiaceae, Selaginellaceae, and Isoetaceae. All genera, subgenera, and sections occurring in the Americas are discussed. That amounts to more than one-half of the genera and almost 90 percent of the families of the world's living pteridophytes recognized in the Tryons's classification. There are 3,250 species in the Americas, and about 3,000 inhabit the tropics, which includes Florida, Mexico, and the region south to northern Chile and Uruguay.

Ferns and Allied Plants thus contains a massive amount of information, and it is well organized, documented, and cross-referenced. The index lists the names of all species treated, arranged by genus, and includes synonyms. There is a general key to the families of pteridophytes in the Americas, and for each family there are keys to American genera and even to species of many of those genera. References listed in the bibliography are current through 1981. The text is arranged systematically by families and genera. Complete generic nomenclature is given, and descriptions are comprehensive even to including chromosome numbers. Fine illustrations abound throughout: biogeographic maps, field photographs (most by Walter H. Hodge), and photographs and drawings of habit and of morphological and anatomical details. And there are scanning electron micrographs by Edward Seling that illustrate spores especially well. Spores figured are documented by citations of herbarium specimens.

Discussions of spores are primarily the work of Alice Tryon. Her descriptions emphasize the morphology of the exospore and the perispore. The perispore, she states, forms the outer wall layer in all species, with few exceptions. Although the perispore is difficult to recognize in some groups, she concludes that distinctions between genera made on the basis of presence or absence of a perispore need to be reappraised. It appears that morphology of the perispore usually is characteristic of genera or infrageneric taxa. Generally speaking, spores of primitive families have their contours formed by the exospore, to which a thin perispore conforms, and the surfaces of spores of advanced families are the result of elaboration of the perispore. There are exceptions to this generality. Spores of the Polypodiaceae (tribe Polypodieae), which the authors consider to be advanced because they are monolete,

have contours derived from the exospore. Distinctions may indeed be difficult using light microscopy, in any event. For example, the similar striate sculpture of spores of Anemia (Schizaeaceae) and Saccoloma (Dennstaedtiaceae) is formed by the exospore and perispore, respectively.

Thumbing through the SEM micrographs should be pleasing and occasionally surprising for discerning palynologists. Particularly striking are the photos of spores of Anemia, Pityrogramma, Pteris, Dennstaedtia, Ctenitis, Diplazium, Bolbitis, and Asplenium. (The perispore obviously is responsible for sculpture in the last four genera.) Perhaps unexpected will be the Gleichenia (subgenus Mertensia) spores, which are monolete--quite unlike Gleichenioidites, and those of Cyathea, which show much more variety than do fossils assigned to Cyathidites. Such observations should remind us that most of our familiar taxa are form-genera with no implied relationship to modern families. Nonetheless, the SEM micrographs in this book should be useful in assessing modern affinities of fossil spores. Spores of Trichomanes resemble fossils that many palynologists might assign to Foraminisporis. On the other hand, those who think they can recognize spores of Polypodium among fossils should also check Histiopteris, Nephrolepis, and Microgramma.

Fossil spores are scarcely mentioned in this book, however, which probably is its greatest shortcoming from the paleopalynological point of view. Fossil pteridophytes in general are summarily dismissed. The authors state that "the fossil record is inadequate for phyletic analyses." Aside from the dubious merit of that stale notion and its implicit ignorance of the palynological record (the authenticating reference for this remark is a megafossil paleobotanical text), there is a sad irony in the statement. The Tryons tell us that the classification they adopted is based on character similarities rather than "presumed phyletic relationships," but that it recognizes taxa that allow evolutionary relationships to be revealed. They admit to lack of information for assessment of the primitive or advanced state of characters. (Interestingly, one feature they do consider reliable in this regard is the monolete versus trilete condition of spores.) Ultimately they conclude from their studies that "many genera are neither clearly derived from, nor obviously ancestral to another genus." Shades of special creation! I cannot believe that the fossil record of pteridophyte spores cannot in fact contribute much to understanding the evolution of these plants.

As an editor I cannot forgive their use of "irregardless" (p. 11), but regardless and irrespective of that barbarism, Ferns and Allied Plants is at once an excellent reference and a book of coffee-table quality. Considering the price, I will stop short of recommending that everyone have a copy on their shelf. Do check out your library's copy.

D. J. Nichols

#### NEW MEMBERS

Nairn R. Albert, Geology Dept., Stanford Univ.,  
Stanford, CA 94305.  
Sahire I. Alpaslan, Universitetet i Bergen,  
Geologisk Institutt Avd. A, 5000 Bergen, Norway.  
Maria Fombella Amor, Instituto Investigaciones  
Palinologicas, Apartado 244, Leon, Spain.  
David A. Bailey, "Barrowfold", Staveley-in-Cartmel,  
Ulverston, Cumbria, LA12 8NH, U.K.  
Raymond H. Bate, British Museum (Natural History),  
Cromwell Road, London SW7 5BD, U.K.  
Nihat Bozdogan, Turkiye Petrolleri A.O., Arastirma  
Merkezi GR. BSK., Ankara, Turkey.  
Richard E. Carroll, 7C-447 S. Wymount Terrace,  
Provo, Utah 84604.  
Khalilur Rahman Chowdhury, 165-B Tejkunipara (1st  
Floor), Tejgaon Dhaka-15, Bangladesh.  
Faith E. Daniel, P.O. Box 447, Whitehall, MT 59759.  
John A. Daniel, P.O. Box 447, Whitehall, MT 59759.  
Liza Evans, Geology Department, Marischal College,  
Broad St., Aberdeen AB9 1AS, Scotland.  
Urs Groner, Geograph. Institut, Universitaet  
Zuerich-Irchel, Winterthurerstr. 190, 8057  
Zurich, Switzerland (previously incorrectly  
listed as an institutional member).  
Fearghal L. Hayes, 93 Wigmore St., London W1H 9AA,  
U.K.  
John Ince, c/o Wilcoxon Group Paleontologic  
International, 180 Pava Lebar Road #02 03, Yi  
Guang Building, Singapore 1440.  
Bogomir Jelen, Geoloski Zavod Ljubljana, Parmova  
Cesta 37, 61000 Ljubljana, Yugoslavia.  
Miklos Kedves, Dept. of Botany, Jozsef Attila Univ.,  
P.O. Box 657, Szeged, Hungary.

Matthew W. Klare, Department of Botany, University  
of Iowa, Iowa City, IA 52242.  
Inger Lise Kristiansen, Norsk Hydro A/S, P.O. Box  
4313, N-5013 Nygardstangen, Norway.  
Enzo Lanzoni, Centro Studi-Servizio Gerc, AGIP  
S.p.A., C.P. 12069-20100, Milan, Italy.  
Nigel Mills, Schollers Gate 4, 7000 Trondheim,  
Norway.  
Lynnette A. Milne, 43 Essex Street Wembley, W.A.  
6014 Australia.  
Andrew T. Riddick, 7 Salisbury Rd., Cressington  
Park, Liverpool L19 0PQ England.  
Jonathan R. Rider, 18455 Augustine Road, Nevada  
City, CA 95959.  
Coleman R. Robison, Getty Oil Co., Research Center,  
P.O. Box 770070, Houston, TX 77215-0070.  
Haavard Selnes, I.K.U.--Postboks 1883, N-7001  
Trondheim, Norway.  
Arthur H. Smith, N.C.B. Yorkshire Regional  
Laboratory, Golden Smithies Lane, Wath-Upon-  
Dearne, Rotherham, South Yorkshire, U.K. S63  
7EW.  
Ali Omar Tekbali, 619 Pole Line 135, Davis, CA  
95616.

#### NEW INSTITUTIONAL MEMBERS

American Museum of Natural History, Library --  
Serials Unit, Central Park West At 79th St., New  
York, NY 10024.  
Arco Alaska, Inc., Arco Expl. -- Alaska Operations,  
P.O. Box 360, Anchorage, AK 99510.  
Getty Oil Company, Research Center Library, P.O. Box  
770070, Houston, TX 77215.

AMERICAN ASSOCIATION OF STRATIGRAPHIC PALYNOLOGISTS  
STUDENT SCHOLARSHIP

The American Association of Stratigraphic Palynologists is pleased to announce its program of Student Scholarships to support studies in palynology. Currently two such 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.

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

PART A                      Application for AASP Student Scholarship

Student's name:

Address:

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, perserverence, imagination and probable creativity, and value of the project.

Faculty supervisor's name:

Signature:

Date:

Position:

Institution:

Address:

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