

NEWSLETTER

AMERICAN ASSOCIATION OF STRATIGRAPHIC PALYNOLOGISTS INC.

VOLUME 8

DECEMBER, 1974

NUMBER 1

Richard L. Pierce, Editor
David R. Mishell, Assoc. Editor

Judith K. Lentin, Correspondent
Eloy Salas, Correspondent

PRESIDENT'S MESSAGE

I would like to express my sincere appreciation to all who helped make our Seventh Annual Meeting a successful and rewarding experience. Outstanding guest speakers, interesting papers, stimulating field trips, good fellowship, pleasant accommodations, and excellent weather combined to make the Calgary meeting a memorable event.

Special thanks are due the following: Wayne Brideaux and his committee who organized the meeting; Lil Slattery and her staff who aided the conduct of the meeting; Martin Dube who coordinated the audio-visual aids throughout the technical sessions; Len Hills who skillfully led both field trips; those who presented papers or chaired technical sessions; and finally, the members of the Association whose participation was materially responsible for the success of the meeting.

R. W. Hedlund

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SEVENTH ANNUAL AASP MEETING CALGARY, ALBERTA, CANADA - 1974

We wish to echo the appreciation expressed by Dick in his President's Message and add our own special thanks to Wayne.

There was a total of 142 registrants at the meeting; 19 more than last year's record at Anaheim. Thirty-five papers were fully presented. Several additional papers were given in abstract form. Invited papers included a geologic setting for the arctic, given by Drs. Hans Trettin and Hugh Balkwill of the Canadian Geological Survey, and a broad survey

of fungal spore morphology, presented by Dr. Kris Pirozynski of the Bio-systematics Research Institute in Ottawa. The award for Best Paper Presented by a Student went to Sarah T. Pierce (no relation) for her paper entitled "Morphology of Schizosporis reticulatus Cooksoon and Dettman". Sarah is a student at Stanford and is studying under Bill Evitt. Under the aegis of ICP's Working Group P3, Stan Pocock convened a special meeting of participants who gave papers concerned with the Jurassic/Cretaceous boundary. These papers are being assembled by Stan and will be published as a coherent section in the Calgary Proceedings volume of Geoscience and Man. Bob Perkins, editor of Geoscience and Man, topped off the meeting with an editorial workshop for past, present, and future authors. The workshop was so informative that numerous requests have been received to have the workshop repeated at future meetings.

The above paragraph does not begin to describe the activities that took place at the meeting, or do justice to the efforts of the contributors. Although the tangible result of the meeting will be the publications that come out of it, the intangibles were probably more rewarding to those fortunate enough to attend.

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EXECUTIVE COMMITTEE MEETINGS

The executive committee meetings for AASP were held October 16th and 18th in the Corral Room, Palliser Hotel, Calgary. Copies of the minutes can be obtained from the Secretary-Treasurer, Herb Sullivan. Following is a brief summary of the minutes:

- 1) Accepted the Treasurer's Report which listed total assets of \$5,672.28 prior to payment of publication costs for the Fifth Proceedings (Newport) volume.
- 2) Accepted the Secretary's Annual Membership Report which showed a net gain of 21 members since the end of 1973 for a total membership of 371. (In addition, 18 new members have joined since preparation of the Secretary's report.)
- 3) Accepted the Editor's Report which listed the following publications for the year:
 - a. Four Newsletters, (Vol. 7)
 - b. The Fifth Proceedings volume from Newport, (published as Volume IX of Geoscience and Man)
 - c. The 1974-1975 AASP membership directory
 - d. AASP Contributions Series No. 3, Statistics in Stratigraphic Palynology: An Annotated Bibliography by N. O. Frederiksen

4) Appointed the 1975 Nominating Committee:

Al Berti
Charles Felix (Chairman)
Art Knox
Satish Srivastava
Bill Ventress

- 5) Elected Bob Clarke chairman of the Ballot Committee and accepted his appointment of Jake Gerhard and Del Potter as committee members.
- 6) Received Karl Newman's report on the inactivity and probably demise of the Joint Commission on Paleontologic Information.
- 7) Reviewed Bob Clarke's plans for an AASP Foundation that probably would be eligible for tax deductible contributions and a 501 (c) (3) IRS tax status. The initial trustees of this Foundation would be the Financial Development Committee consisting of Norm Norton, Bob Clarke and Ray Malloy. Bob is actively working on the IRS to have his foundation plans accepted. (AASP, Inc. was granted a tax status of 501 (c) (6) on Oct. 17, 1974.)
- 8) Asked Al Traverse to continue as AASP's representative to ICP. A final version of the ICP constitution is not expected until December, 1976, at Lucknow, India.
- 9) Appointed Colin McGregor chairman of the Committee for International Affairs. His committee is soliciting membership lists from foreign palynological societies.
- 10) Reviewed with Bob Perkins possible ways to reduce publication costs of the Proceedings volumes. Bob had several cost reduction suggestions among which was that authors adhere to the Manuscript Preparation Guide, particularly with respect to plate requirements!
- 11) Conducted such other business as is recorded in the Secretary's minutes.

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CALGARY PROCEEDINGS MANUSCRIPT DEADLINE

Manuscripts from the AASP meeting in Calgary are due in to the AASP editor, Rick Pierce, by January 15, 1975. Because of the large volume of papers

expected from the Calgary meeting, there will be little excess time available for exceptions. If everything goes as now planned, it is entirely possible that the Calgary Proceedings volume will be out before the 1975 meeting in Houston. However, expeditious publication of the Calgary papers is dependent on each author meeting the required deadlines once his manuscript is in the mill. The first of these deadlines is January 15, 1975.

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NEW MANUSCRIPT PREPARATION GUIDE

A new guide for the preparation of manuscripts intended for publication in Geoscience and Man was handed out at the Calgary meeting. It is presumed everyone at the meeting who was interested in a copy got one. Anyone else who would like a copy of the guide can get one by writing to Bob Perkins, Editor, Geoscience and Man, Museum of Geoscience, Louisiana State University, Baton Rouge, Louisiana 70803.

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EIGHTH ANNUAL AASP MEETING

AASP's Eighth Annual Meeting will be held in Houston, Texas, October 29-31, 1975. Bill Elsik has sent in the following basic outline for the meeting:

Field Trip

A full day field trip led by Rufus Leblanc to Recent environments, principally the Brazos River Delta, will be held on the day preceding (Tuesday, October 28) and the day following (Saturday, November 1) the meeting. Each trip is limited to 40 people on one bus as much of the presentation takes place while enroute between stops. The Saturday trip will be filled first, with the Tuesday trip for an overflow (we hope to fill both!).

Sample

No field trip to the Upper Cretaceous-Lower Tertiary localities will be made. Rather a suite of samples known to be palyniferous will be made available to meeting participants.

Papers

Time is allotted for ± 35 papers depending upon response to a call for papers. First formal call for papers will be issued March 1st. If you have something in mind, now is the time to get in an informal

notice to the meeting committee (c/o W. C. Elsik) to facilitate their planning.

Return addressed cards will be sent out in December for your indication of 1) field trip participation, 2) total meeting attendance for preparation of Upper Cretaceous-Lower Tertiary sample suites and 3) expected title of contributed paper and time required for presentation.

Microscopes

At least 2 microscopes will be available throughout the meeting for those interested in comparing material, identifying problematics, etc.

Symposia

Several symposium topics have been proposed (results from the earlier questionnaire). The topics and persons to contact are:

Kerogen-Organic Maturation
J. D. Burgess

Tertiary Dinoflagellates
L. E. Stover

Aquilapollenites group
E. W. Borden

Quaternary Palynology
V. M. Bryant, Jr.

Early Tertiary Palynology
W. C. Elsik

S. A. J. Pocock has also indicated another meeting of the work group on the Jurassic-Cretaceous boundary.

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CIMP MEETINGS

In response to our request for summaries of CIMP, ICP or related meetings attended by an AASP member, Colin McGregor has given us the following summary of the CIMP Executive Committee meeting held in Namur, Belgium, September 5-6, 1974:

There were three items on the agenda: organization of the meeting in London in January, 1975, on the Devonian; CIMP participation at the Carboniferous Congress in Moscow in 1975; and other business. The following is a summary of those parts of the proceedings that may be of interest to AASP members.

Re. the meeting in London, to be held in King's College on January 6 and 7: a proposed program was drawn up to comprise informal presentations on January 6 by K. Allen, W. G. Chaloner, P. Gensel, D. C. McGregor, J. Richardson, W. Riegel, M. Streel, and H. Visscher, and working sessions on January 7 dealing with spores at the Devonian-Carboniferous boundary, Archaeozonotriletes and related spores, and Hystriacosporites and related spores. A circular will be sent out to CIMP members prior to the meeting.

Re. the 8th Carboniferous Congress in Moscow, September 8-13, 1975: Streel noted that the Congress organizers have scheduled September 9 and 10 for Lower and Upper Carboniferous sessions of the CIMP. The plenary meeting of the CIMP will be on September 11.

At Namur, the Executive Committee drew up a program for September 9 and 10, involving four sessions. They propose that the CIMP sessions take the form of demonstration and discussion, with papers to be accepted for publication but not presented formally at the sessions. The Secretary-General agreed to contact Meyen proposing this program and suggesting that co-convenors be appointed from the U.S.S.R. The details will be announced when the program has been finalized.

Four additional sessions were proposed, two on the Devonian and two on the Permian. They would be outside the scope of the Congress but it was agreed to approach the local Congress organizing committee for rooms and Soviet co-convenors for these sessions as well.

Re. other business: The Executive Committee expressed interest in close liaison with AASP and other national, regional, and topical palynological organizations. With reference to AASP, they expressed interest in taking part in a joint meeting, either in 1976 in Halifax, or later. For financial reasons it seems likely that few of the Executive Committee, and probably few of the European members of the CIMP, would be able to get to either the Palynology Congress in Lucknow, or the Geological Congress in Sydney in 1976. They agreed, however, that the ICP Executive should be kept informed of any plans, as it was not intended to run in conflict or competition with the Lucknow congress.

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ICP MEETING

Colin has also given us the following summary of an ICP meeting he attended:

Discussion sessions of Working Groups P1 (Diagenesis of Miospores and Methods of Palynologic Preparation) and P2 (Improvement of Palynologic Data-Handling for Stratigraphic Correlation) of the International Commission for Palynology were held in the Dept. of Geology, Sedgwick Museum, Cambridge, England, on September 16 and 17, 1974.

P1 Group: Hughes introduced the topic "Methods of palynological preparation" by suggesting that this group be concerned only paleopalynology, i.e., predistributed a summary of the palynological preparation methods used at the Geological Institute in Zurich. He said they try to avoid using chemical methods as far as possible. Germeraad said there is evidence for selective elimination of certain types of palynomorphs during maceration - for example, in some preparations it was some species of Veryhachium, in others certain spores. He also offered a method for extraction and concentration of spores from glauconite and dolomite. He and Rowley both felt that a key to successful preparation lies in knowledge of ion-exchange phenomena. Fisher believed that certain components of palynomorph walls are made more stable and thus the fossils are more readily extractable in rocks with some nickel-vanadium content.

Rowley in his presentation on ultrastructure of spore and pollen walls noted that some substances in the walls are very labile but can be stabilized chemically. He suggested that study of development of exines could lead to better understanding of diagenetic effects and extraction methods. He and Brooks felt that base treatment should be avoided if possible.

Brooks summarized methods for study of thermal history of spores, i.e., optical microscopy, UV fluorescence, SEM, physical chem. analysis (gas chromatography, mass spectrometry, electron spin resonance), chemical analysis (elemental analysis, chemical assay), and thermal analysis. In the latter technique, when material is heated to high temperatures and temperature is plotted against weight, there are 4 or 5 critical temperatures at which "things seem to happen". Fisher said that ESR is one of the best techniques available now. (Some organic maturation workers consider ESR the most inaccurate method of maturation measurement, Editor.)

Sengupta described experiments with temperature and pressure on modern Lycopodium spores. Excessive heat reduces the size of the spores; concomitant pressure increase reduces the amount of size reduction. Fisher noted that time is also a factor in diagenetic

change. Germeraad said no decrease in size has been observed in fossil material. This observation was disputed by some of those present. Germeraad further stated that generally samples with high carbonaceous content tend to become more highly carbonized than those with less carbonaceous content.

Correia listed the factors that must be considered when studying the application of organic diagenesis to geological problems. In discussion, conflicting opinions were expressed as to the roles of pressure and time in diagenesis.

Collett presented his views on presentation and interpretation of palynological results, especially as related to diagenesis. He emphasized the importance of presenting full details of lithology, preparation technique, and nature of the organic material, and standardizing presentation of results. Correia and Fisher believed that standardized presentation was difficult; e.g., temperature scales obtained by ESR, or spore colour related to temperature, do not always agree from one basin to another, or allow exact temperatures to be determined. Germeraad noted that carbonization is greatly increased in a thin layer in slickensides, and that ups and downs in translucency may be because of this and other geological features that may not be recognized. He also felt that for paleogeographical and botanical studies it is important to recognize which types of palynomorphs disappear first on carbonization.

For the future, Hughes suggested that a stratigraphic section be found on which several members could work, to try to apply a classification of all kerogenic material, and see what sort of standardization can be achieved. A steering committee consisting of Brooks, van Gijzel and Fisher was set up to look into implementation of Hughes suggestion.

P2 Group: Hughes explained that he envisaged that the objective of the group should be to discover how to get the most out of data, raise standards in publication, and take advantage of the computer. The working group would be in line with the objectives of the IGCP project "Accuracy in Time".

Hughes further remarks essentially summarized the views on "biorecords", expressed in Hughes, 1969, *Grana Palynologica* 9:137-146, and Hughes and Croxton, 1973, *Palaeontology*, 16:567-601. He emphasized that his main objective was not to promote the biorecord system, but to discover ways of improving the handling of palynological data.

Chaloner and McGregor believed that adoption of the biorecord system would add to or substitute for the Linnean system and at least equally complex methodology and terminology, and it was doubtful if it would in fact lead to improvement potential for time-correlation.

Germeraad, Chaloner, and Caratini expressed views on the basic assumptions involved in zonation and correlation using paleobotanical remains.

Hughes felt that the common method of time-correlation, whereby "events" are compared with "events" in a reference section, and correlated when they are judged to be "the same", is fundamentally wrong. One should rather say that the event happened before reference point x and after reference point y, for example. (See Hughes et al., Geol. Mag. 104:634-635.)

Regarding publication of paleontological systematics, Hughes explained that the journal "Palaeontology" has already begun a system whereby those portions of manuscripts involving systematics are deposited in the U.K. National Library, where they are available for xeroxing on request. The plates and the remainder of text are printed in the journal as before.

In conclusion, Hughes said that he will arrange time in Lucknow for meetings of the Working Groups. McGregor believed that the biorecord system had been discussed at length, and it was time now to consider other ways of improving the handling of data, perhaps by promoting better use of the presently used Linnean system.

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BRITISH PALEOBOTANICAL MEETING

Charlie Felix attended some of the same meetings Colin did, and also some he did not. Charlie sent in the following note on a paleobotanical meeting:

I attended a symposium entitled "RECENT ADVANCES IN PALAEOBOTANY" on September 11, 1974, at the British Museum of Natural History and chaired by C. R. Hill of the museum. Of interest to palynologists was R. A. Spicer of Imperial College, London, who presented a progress report of his study of deposition patterns of dispersed plant remains in recent lacustrine delta environments and the relations to source vegetation. B. A. Thomas of Goldsmith College, London, presented spore data in his review of THE CARBONIFEROUS LEPIDODENDRACEAE, and M. C. Boulter of N. E. London Polytechnic demonstrated his taxonomy system of LUMPING OF TERTIARY POLLEN.

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GSC TRANSLATIONS

Wayne Brideaux has sent us a list of translations available from the Geological Survey of Canada at 15 cents/page. They can be obtained by writing Mrs. D. M. Sutherland, GSC Library, 601 Booth Street, Ottawa K2A 0E4, Ontario Canada. To save space we'll cite last name, year, paraphrased title, and number of pages:

- Alekseva, 1969. Albian palynology of the pre-Caspian Depression. 17pp.
- Bondarenko, 1961. Cretaceous palynology, Ob Bay district. 63pp.
- Brattseva, 1965. Maestrichtian palynology of the Far East. 113pp.
- Khlonova, 1961. Late Cretaceous pollen and spores from West Siberia. 241pp.
- Khlonova, 1971. Cretaceous palynology of Siberia and the Far East. 263pp.
- Kotova, 1964. Early Cretaceous Transbaikalian Flora. 33pp.
- Kuvayeva, 1970. New palynological species from the Early Cretaceous of Azerbaydzhan. 10pp.
- Kuvayeva, 1970. Late Aptian palynology in the Atachai River region. 7pp.
- Il'ina, 1968. Jurassic palynology, Western Siberia. 68pp.
- Lapteva, 1967. Jurassic palynology, Donets basin. 16pp.
- Markova and Skuratenko, 1960. Early Cretaceous assemblages from a Turukhansk well. 13pp.
- Orlova - Turchina, 1966. Hauterivian and Barremian pollen assemblages from the Crimea. 19pp.
- Prosviryakova, 1966. Jurassic Flora of the Mangyshlak Peninsula. 220pp.
- Rotman, 1972. Danian - Paleocenepollen assemblages from the Crimea. 31pp.
- Shugaevskaya and Markevich, 1971. Late Jurassic - Early Cretaceous Intortes pollen. 25pp.

- Voronova, 1972. Sphagnumsporites stratigraphic range. 21pp.
- Wiedmann, 1968. Jurassic/Cretaceous boundary problem. 133pp.
- Yaresenko, 1965. Jurassic - Early Cretaceous pollen assemblages from the Northern Caucasus. 265pp.
- Zaklinskaya, 1966. New pollen species from the Late Senonian of Kazakhstan. 15pp.

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FOURTH INTERNATIONAL PALYNOLOGICAL CONFERENCE, LUCKNOW

DECEMBER, 1976

The first circular of the conference has been issued and may be obtained from:

The Secretary General
Fourth International Palynological Conference
53 University Road
Lucknow 226007, INDIA

Present plans are to have each day's proceedings start with a plenary session after which sectional meetings will be held. The sectional meetings have been provisionally separated into six topic divisions:

- Division I: Morphology and Taxonomy: Pollen and Spores.
- Division II: Morphology and Taxonomy: Dinoflagellates, Acritarchs, Diatoms, Coccoliths, Chitinozoa and Radiolarians.
- Division III: Palynological Stratigraphy and Geography.
- Division IV: Quaternary Palynology.
- Division V: Palynological data handling and Methodology.
- Division VI: Palynology in medicine, agriculture, forestry, etc.

As mentioned in the September Newsletter, all publications from the Conference can be received even if you don't attend by sending 35 U.S. dollars or their equivalent to the Secretary General.

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PROCEEDINGS OF THE THIRD INTERNATIONAL PALYNOLOGICAL CONFERENCE NOVOSIBIRSK, 1971

The thought we were through with this one, but Satish Srivastava sent in the following additions to the list given in the September Newsletter:

1. Palynological researches in the Baltic Soviet Republics. VNIIMORGEО, Institute of Geology (VILNIUS), Institute of the Academy of Sciences of Estonian SSR, Publ. House Zinatne, Riga, 1971, 158 pages (editor: T. Bartosh).
2. Mesozoic microfossils of Siberia and Far East. Trans. Inst. Geol. Geophys., Acad. Sci. SSSR (Siberian Branch), Vol. 138, Publ. House Nauka, Moscow, 1971, 154 pages (editor: V. N. Sachs).
3. Spory I pyl'tsa iury i rannego mele srednei azn. Trudy VNIGNI, Vol. 104, Publ. House Nedra, Moscow, 1971, 176 pages (editors: N. A. Bolkhovitina & N. I. Fokina).

In addition, Geoff Norris vengefully pointed out that item No. 3 in our September Newsletter list should have been attributed to the Order of the Red Banner of Labour Geological Institute. Geoff, you've made us believe.

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DIRECTORY OF WORKERS ON CHITINOZA

A directory of persons working on or interested in Chitinoza has been prepared by Sven Laufeld and may be obtained by writing to him at:

Department of Geology
125 South Oval Drive
University of Ohio
Columbus, Ohio 43210

Sven is also interested in being contacted by people who should be in the directory but aren't.

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LSU PALYNOLOGY SHORT COURSE

JANUARY 9-11, 1975

George Hart has put together another of his excellent short courses. This will be his 7th and is on Cenozoic palynology. Margaret Davies will lecture on Quaternary palynology and miospore sedimentation, Jane Gray on Neogene palynology, taxonomy and stratigraphy, and Bill Elsik on Paleogene palynology and stratigraphy. The course is limited to 30 external participants.

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FELIX - BURBRIDGE MANUSCRIPT

Due to the time interval likely to elapse before publication in Geoscience and Man, Felix and Burbridge will provide Xerox manuscript copies of their paper presented at the Calgary meeting, "Age of microplankton studied by Manum and Cookson from Graham and Ellef Ringnes Islands". Anyone desiring a copy should request it from Charles Felix, Sun Oil Co., Richardson, Texas.

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OOPS!

As a point of trivial recognition, the unnumbered head between M. Boyko and A. Traverse and between G. Fournier and D. Jarzen in the key to the picture of the Fifth Annual Meeting (Geoscience and Man, 1974, v. 9, p. 83) is that of T. Webb III, one of those Quaternary palynologist types.

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NEW MEMBERS

AASP is pleased to welcome the following new members:

Archangelsky, Sergio, Avenue Santa Fe 3344, p.12/d.27, Buenos Aires,
Argentina. Tel. 80-8602

Artzner, Darrah G., 1052 College Street, Apt. 3, Toronto, Ontario,
Canada MGH1A9

Benson, Don G. Jr., P. O. Box 824, Radford, Virginia 24141,
Tel. 703 - 639-1333

Braman, Dennis, 4539 17th Avenue N.W., Calgary, Alberta, Canada
(No ZIP!), Tel. 288-6039

Jardine, Serge, Laboratoire d'Exploration, ELF R.E., 31360 Boussens,
France

Jones, Richard E., Department of Geosciences, University of Arizona,
Tucson, Arizona 85721 Tel. 602 - 884-3603

Kasper, Andrew E. Jr., Department of Botany, Rutgers University,
Newark, New Jersey 07102 Tel. 201 - 648-5369

Kravosky, Elena, 280 Queen Alexandra Road S.E., Calgary, Alberta,
Canada T2J 3P5 Tel. 271-3157

Landin, Ray R., Sun Oil Company, 503 North Central Expressway,
Richardson, Texas 75080 Tel. 214 - 744-4411, Ext. 81243

Manum, Svein B., Institutt for Geologi, Universitetet i Oslo,
P. O. Box 1047, Blinderen, Oslo 3, Norway

Mellina, Sue B., Mobil Oil Corporation, Stratigraphic Laboratory
ESC, P. O. Box 900, Dallas, Texas 75221 Tel. 214 - 638-7700
Ext. 677

Pierce, Sarah T., Department of Geology, Stanford University, Stan-
ford, California 94305 Tel. 415 - 497-4280

Poeltl, Franz, Shell Canada, Ltd., P. O. Box 880, Calgary, Alberta,
Canada T2P 2K2 Tel. 261-3600

Polugar, Morton, Chevron Overseas Petroleum, Inc., P. O. Box 3069,
San Francisco, California 94119 Tel. 415 - 894-7700

Price, Peter Lawrence, Mines Administration Pty., Ltd., GPO Box 880,
Brisbane, Australia 4001

Rankin, Adrienne Greider, 6331 North 3rd. Street, Phoenix, Arizona
85012 Tel. 602 - 264-2936

Van Niel, J. P., c/o Shell U.K. Exploration and Production Ltd.,
(SEPE/3) Shell Centre, London, United Kingdom SE1 7NA.
Tel. (01) 934-2187

Williams, Stephen L., Texaco, Inc., 3350 Wilshire Boulevard, Los
Angeles, California 90010 Tel. 213 - 385-0515

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DIRECTORY CHANGES

Please enter the following changes in your 1974-1975 membership directory:

Afejuku, Anthony, III, Geoscience Division, The University of Texas
at Dallas, P. O. Box 30365, Dallas, Texas 75230 Tel. 214 - 690-2429

Baker, Lynn E., Exxon Company USA, P. O. Box 2180, Room 2295, Houston,
Texas 77001

Beckelle, Tove G., to Bockelie, Tove G.

Berti, Albert A., Chevron Standard, Ltd., 400 5th Avenue S.W.,
Calgary, Alberta, Canada T2P 0L7 Tel. 403 - 267-5910, Ext. 454

Cameron, Donald K., Jr., P. O. Box 1934 to P. O. Box 1948

Cohen, Arthur D., U. S. Geological Survey, 956 National Center, Reston,
Virginia 22092

Cramer-Diez, Fritz H., Instituto Palinologico, Caja de Ahorros y
Monte de Piedad, Plaza de San Marcelo 5, Leon, Spain

Edson, James E. Jr., Department of Geology, Tulane University,
New Orleans, Louisiana 70118

Fasola, Armando, Department of Geology, University of Toronto, Toronto,
Ontario, Canada M5S 1A1 Tel. 416 - 928-4851

Haskell, Tom R., Shell, BP and Todd Oil Services, Ltd., King's Bldg.,
Devon Street, New Plymouth, New Zealand

Jenkins, W. A. M., Bedford Institute, Dartmouth, Nova Scotia, Canada

Rachele, Linda D., c/o Filazzola, 87-24 Midland Parkway, Apt. 3D,
Jamaica, New York 11432

Robbins, Eleanora I., U. S. Geological Survey, National Center Stop
955, Reston, Virginia 22092 Tel. 703 - 860-6634

Shumard, C. Brent, Oil Development Company of Texas, P. O. Box 12058,
Amarillo, Texas 79101 Tel. 806 - 376-5741, Ext. 246

Sullivan, Herbert J., change Calgary to Calgary, Alberta, Canada
T2P 0Y2

Uesugui, Namio, A/C Petrobrás - Lab. Central de Exploracao, Rua
General Polidoro, 81, Botafogo, Rio de Janeiro, Brazil

Waanders, Gerald L., Amoco Production Company, P. O. Box 50879,
New Orleans, Louisiana 70150 Tel. 504 - 529-3111, Ext. 538

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R E M E M B E R

N E W S L E T T E R I T E M S

A R E W E L C O M E D

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(Items for next Newsletter need to be received by March 1, 1975)

MEMBERSHIP APPLICATION FORM

THE AMERICAN ASSOCIATION OF STRATIGRAPHIC PALYNOLOGISTS

Prof. Dr. Mr. Miss Mrs. (Please strike out ones which do not apply.)

Name _____ Date _____

Address _____

_____ Zip _____

Telephone _____

Professional affiliation: for whom _____

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

Signatures of sponsors 1) _____

(Must be members in good
standing of AASP) 2) _____

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Purpose of AASP (adopted 8 December, 1967): "...to promote the science of
palynology, especially as it relates to stratigraphic applications and bio-
stratigraphy; to foster the spirit of scientific research among the members;
to disseminate information relating to palynology."

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Please Note: Application must be accompanied by \$10.00 (USA) in order for the
Executive Committee to elect applicants to membership.

Send to: M.J. Sullivan, Amoco Canada, 444 7th Ave. S.W.,
Calgary, Alberta, Canada T2P 0Y2