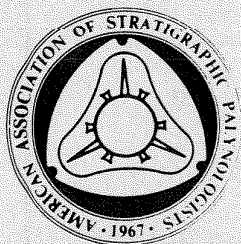


JANUARY, 1987
VOLUME 20, NUMBER 1

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AASP NEWSLETTER

VOLUME 20, NUMBER 1 JANUARY, 1987

J. H. WRENN, EDITOR ISSN 0732-6041

THE PRESIDENT'S MESSAGE

New Year's greetings to all my palynological colleagues. The short time period between the last AASP Newsletter and the deadline for this issue has precluded membership comment on my last column. However, the board members and I welcome your comments and suggestions. Please send them along.

I would like to thank the former AASP Newsletter editor, **Bob Ravn**, for his innovative service in that position. The Newsletter benefited in many ways under his guidance. The inclusion of photographs and the Technical Section in the Newsletter are two things that readily come to mind. I hope that he will continue to work for the AASP in other capacities. Thanks again Bob.

A final item needs brief discussion. One of the strong points of our association is the diversity of experience and expertise of our members. The AASP constantly needs talented people to work on the various committees without which the association could not function efficiently. Toward that end, I solicit volunteers who are interested in serving on an AASP committee. Please send me a card or letter expressing your willingness to serve and I will see that it is forwarded to the correct committee chairperson.

Don G. Benson, President AASP

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

PALYNOLOGIST

The combination of dedicated professionals and sophisticated technology has kept Aramco at the forefront of its industry. As the world's largest oil producer, we are looking for individuals looking for professional and personal growth to join our operations in Saudi Arabia.

A minimum of 7 years experience in the petroleum industry is required along with a Masters degree in Geology. Prior experience should include Paleozoic emphasis with acritarch and chitinozoan knowledge. Palynofacies work is a plus. The qualified candidate will work in an exploration environment applying biostratigraphic principles.

Aramco offers extensive compensation and benefits programs. Our compensation program affords our employees a tax free expatriate premium and a liberal vacation program (36 days after one year of employment with paid air fare home leave). Additional benefits include group life and medical insurance, a company savings program and free medical care while in Saudi Arabia. In addition, Aramco offers a host of other generous features such as good schools, housing and recreational facilities.

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ARAMCO

MEET THE AASP OFFICERS

President Don G. Benson, Jr.



Don is a Senior Staff Palynologist with Amoco Production Company. His age is "indeterminate," as well as secret. It is no secret, however, that he and his wife Kitty have two children. He earned a BS (1962) at Tulane University and a PhD (1965) at the University of Virginia. Don told me that, well...let him tell you.

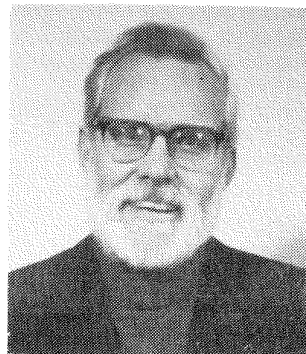
"These two degrees were useful in my previous life as

a University Professor at Louisiana State University and Virginia Polytechnic Institute (VPI) in the fields of experimental embryology, endocrinology, and cytochemistry. I've got about 11 publications in those areas.

"I earned an MS degree in geology at VPI in 1971. My thesis project, under **Dewey McLean**, was the Cretaceous-Tertiary Boundary in Maryland. As a palynologist, I've worked for Texaco (2-1/2 years) and am currently employed by Amoco (9 years). Both positions were in the New Orleans offices of those firms. Although my work has concentrated on Jurassic-Cretaceous dinoflagellates, I've worked sections ranging from Late Cambrian through Late Eocene. My publications include two on upper Cretaceous dinoflagellates, one on the Dichadogonyaulax-Ctenidodinium complex, and two in preparation. One of the latter is on Devonian spores (w/**Bob Ravn**) and the other is on middle Ordovician Chitinozoans (w/**M. A. Miller**).

"My primary interest outside of palynology is building target rifles and competitive rifle shooting." (Needless to say, the AASP business meetings run by this former Marine are orderly!)

President-Elect Norman O. Frederiksen



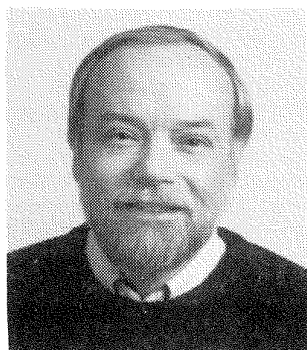
Norm received his PhD from the University of Wisconsin in 1969. He was a palynologist for Mobil Oil Corporation in Dallas, Texas for seven years and Associate Professor of Geology at San Diego State University for six years. Norm has been a research palynologist for the U.S. Geological Survey in Reston, Virginia since 1975. His main interests are the biostratigraphy, paleoecology and paleoclimatology of Late Cretaceous and Early Tertiary spores and pollen grains. His main project areas while at the Survey have been the Gulf and Atlantic Coastal Plains, California and Alaska.



Gordon D. Wood is a Projects Paleontologist-Group leader with Amoco Production Company, Houston, Texas. He was introduced to palynology in course lectures by **Stefan Gartner** at the University of Miami (Florida), from which he graduated with majors in Geology and Marine Biology. At the University of Michigan he studied Devonian chitinozoans under **James A. Doyle**. Gordon's PhD concerned Upper Devo-

nian palynomorphs from New York State and was supervised by Aural T. Cross at Michigan State University. Concurrent with his graduate studies, Gordon taught in the Geology Department at Michigan State and the Natural Sciences Department at Lansing Community College, Lansing, Michigan. His current Amoco duties include palynostratigraphic studies of the Lower Paleozoic of west-central Texas, the Michigan Basin, the Mississippi Embayment-Rift system, and the Mesozoic of Tanzania and Kenya. Gordon's present research interests are concentrated on Lower Paleozoic acritarchs, spores and chitinozoans. He is addicted to softball and cycles 12 miles a day. (I guess you could say Gordon is on a roll.)

Managing Editor Douglas J. Nichols



Doug received his BA and MS degrees in geology from New York University and his PhD from the Pennsylvania State University. He has been employed in academia (City College of New York, Arizona State University, State University of New York) and industry (Chevron USA), and currently is with the U.S. Geological Survey as a research geologist in the Branch of Paleontology and Stratigraphy in Denver, Colorado. Doug is a past-

President of AASP. He also has served AASP as Newsletter Editor (1979-1981) and Journal Editor (1982-1985), and is now Managing Editor. Doug's primary research specialty is Upper Cretaceous and Paleogene spores and pollen and he is interested in biostratigraphy, paleoecology and evolution. His current research projects at USGS concern the plant microfossil record of the terminal Cretaceous event in western North America and palynological applications in basin analysis of the Powder River Basin (Wyoming-Montana) and Uinta-Piceance Basin (Utah-Colorado). He teaches palynology at the University of Colorado. When not in pursuit of fossil pollen, Doug enjoys roaming the Rockies with his camera.

(Coming in the April edition of the Newsletter, profiles of the Directors at Large and the AASP Foundation Trustees.)

AASP COMMITTEE REPORTS

Annual Meeting Organizing Committee

1987 Organizing Committee - Halifax, Nova Scotia

Sedley M. Barss, Chairman
Graham L. Williams
Rob A. Fensome

Attached to this Newsletter is an October-orange announcement detailing the (preliminary) program for the 1987 meeting in the fair city of Halifax, Nova Scotia. The abstract form for the technical and poster sessions will be mailed directly by the Organizing Committee to all AASP members, rather than attached to an issue of the Newsletter.

1988 Organizing Committee - Houston, Texas

Vaugh M. Bryant, Jr., Chairman
Robert T. Clarke
John A. Clendening

1989 Organizing Committee:

President **Don Benson** will entertain site proposals for the annual meetings of 1989 and beyond.

Ad Hoc Committee for Brisbane Travel Funds

Norman O. Frederiksen, Chairman
Patricia G. Gensel
William C. Cornell

The AASP Board of Directors created a new Ad Hoc Committee at the Annual Meeting in New York. The duties of the committee are to (1) write a grant proposal to the U.S. National Science Foundation (NSF) to request partial funding for perhaps 20 AASP members to help them attend the 7th International Palynological Congress in Brisbane, Australia, in 1988, (2) define criteria by which the grants are to be awarded to individual members, and (3) organize a Peer Review Group to evaluate the travel support requests from AASP members and to select grant recipients. The committee has made progress toward fulfilling all three duties. We have been aided by guidelines established by the Board in New York and by having at hand a copy of a successful NSF travel grant proposal written by another geological group several years ago. Our proposal needs to be written quickly in order to meet the NSF submission deadline of April, 1987. If the grant is awarded to the AASP, the Peer Review Group application procedures will be distributed to all AASP members.

The AASP group proposal is necessary because NSF does not fund travel requests from individual scientists. The Board of Directors encourages AASP members of other countries to write proposals to their governments, or other funding agencies, for financial aid to attend the Brisbane IPC.

Norm Frederiksen

Nominating Committee

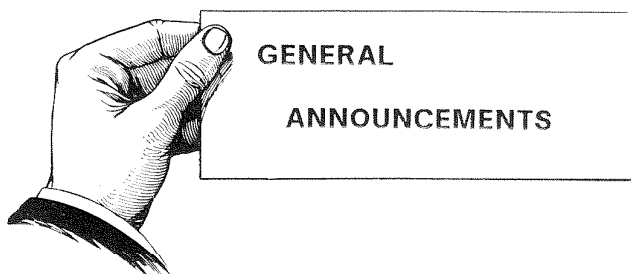
John A. Clendening, Chairman
Sarah P. Damassa
Stephen R. Jacobson
Harold V. Kaska
John H. Wrenn

This is, of course, a secret committee (not secret like those that middle-Atlantic seaboard town on the Potomac River, but really secret): all information on committee activities has been tight-holed.

Awards Committee

Virgil D. Wiggins, Chairman
Barbara L. Whitney
Lucy E. Edwards

The Awards Committee has the responsibility of: (1) appointing judges for the L. R. Wilson Best Student Paper Award at the Annual Meeting, (2) selecting recipients for the two AASP Student Scholarship Awards of \$250 (each may be awarded annually), and (3) recommending nominees to the Board of Directors for the Medal of Scientific Excellence, Distinguished Service Award, and Honorary Membership. Nominations for the latter awards may originate within the committee or by any member of AASP, and may be made at any time during the year. Student Scholarship Awards are made in March. The judging of the L. R. Wilson Best Student Paper Awards take place, of course, at the Annual Meeting each fall.



PALYNOLOGY TO HAVE NEW EDITOR

Effective immediately, **David K. Goodman** will assume the position of Journal Editor for *Palynology* beginning with Volume 11 (1987). Manuscripts to be considered for publication should be sent to Dave at the following address:

Dr. David K. Goodman
ARCO Oil and Gas Company
PRC-3084
2300 West Plano Parkway
Plano, TX 75075 U.S.A.
Telephone (214) 754-6504



There is still room for a number of manuscripts in the upcoming Volume 11. Dave is seeking quality papers on any aspect of palynology and requests that authors follow the *Palynology* format. Authors should refer to a recent issue of *Palynology* as a useful guide in the preparation of manuscripts, paying particular attention to the section entitled "Instructions for Authors" in the back of each volume (pages 266-268 in Volume 10).

AASP BOARD TO MEET WHERE THE STARS ARE BIG AND BRIGHT

The Mid-Year AASP Board of Directors Meeting will be held in Houston, Texas, April 2-3, 1987, at the Westin Oaks Hotel. All members are welcome to attend.

Tentative Agenda

1. Approval of the proposed agenda.
2. Minutes of the Board Meetings held in conjunction with the previous Annual Meeting, New York.
3. Secretary's report.
4. Treasurer's report.
5. Managing Editor's report.
6. AASP Foundation report.
7. Annual Meetings:
 - a. 1986 New York, final report;
 - b. 1987 Halifax;
 - c. 1988 Houston;
 - d. 1989 and Beyond - proposals.
8. Old business:
 - a. Archives Committee report;
 - b. Awards Committee report;
 - c. Nominating Committee report;
 - d. Public Relations Committee report;
 - e. IFPS report;
 - f. Photographic record of past presidents;
 - g. Ad Hoc Committee on grant proposal.
9. New business:
 - a. Presidents report.

AASP members are invited to attend the Mid-Year Board Meeting. By attending, you will know who said what, when, etc., and not have to rely on a condensed report in the *Newsletter*.

Don G. Benson

ACTUNG DEUTCHLAND, ACTUNG!!

An AASP member in Germany has sent a \$20.00 U.S. Postal Money Order for dues payment. Unfortunately, the name of the sender was not indicated on the money order, the envelope or anywhere else. Mystery member, please contact **Gordon D. Wood**, Secretary-Treasurer and identify yourself so that you will receive credit for your dues. If you know the serial number of the money order, include that with your letter of identification. If you don't, write persuasively.

A WORD ON WORDS

The Association of Earth Science Editors (AESE) supports the exchange of information on all aspects of the publishing of earth science research. The current AESE membership stand at over 300 professional editors, and other scientists involved in the newsletter and journal publications of earth science organizations. A few AASP members are already members of AESE, and each of those would attest to the benefits of their involvement with AESE.

Ten intentionally placed errors appeared in the above paragraph. Some unintended errors might also have occurred. Providing advice on developing the skills used to spot those errors is only a small part of the goals of the Association of Earth Science Editors. AESE distributes a newsletter, *Blueline*, and holds an annual meeting. Recent issues of *Blueline* included items of general interest to earth scientists as well as guides to punctuation and usage, book reviews, and job announcements. The 1986 annual meeting was a two-day symposium on publishing, from staffing an office to distributing the final product. Topics included writing, editing, reviewing, and do-it-yourself publishing with desk-top computers.

Membership dues to AESE are \$20 (U.S.)/year for regular and associate memberships. Information on membership can be obtained through **Kathleen Krafft**, AESE Secretary-Treasurer, U. S. Geological Survey, Mail Stop 903, Reston, VA 22092.

(We thank AASP and AESE member **Susan L. Duffield**, Amoco Production Co., New Orleans, LA, for this announcement.)

NAMS CALL FOR PALYNOLOGISTS

The North American Micropaleontology Section (NAMS) of the Society of Economic Paleontologists and Mineralogists (SEPM) invites all palynologists to join. This rapidly growing SEPM section was organized in 1977 to promote and encourage the study of microfossils through research, publications, seminars and meetings. NAMS has a membership of more than 350 scientists.

Membership dues are \$4 (U.S.) yearly, and multiples of \$4 up to \$20 for five years are accepted. Membership includes the NAMS newsletter (published three or four times yearly) which contains announcements of paleontological meetings, symposia, informal gatherings and SEPM news relevant to the field of palynology. Make checks payable to NAMS-SEPM and mail to: **Robert Fleisher**, Chevron Overseas Petroleum, P. O. Box 5046, San Ramon, California, 94583-0946.

NEW MEMBERS

Barron, Hugh F.
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Vidal, Gonzalo
University of Lund
Geological Institute
Micropalaeontology Lab
Box 124
S-221 00 Lund
SWEDEN



IN MEMORIUM

ANNOUNCEMENTS OF PASSING

Eugene J. Tynan, Department of Geology, University of Rhode Island at Kingston passed away July 12, 1986. A memorial is being prepared and will appear in the next issue of the Newsletter.

Ganapathi Thanikaimoni, 48, was murdered by terrorists aboard a Pan American 747 airliner at the airport in Kerachi, Pakistan, on September 6, 1986. He was the Chairman of the Department of Palynology at the French Institute, Pondicherry, India. Materials for a memorial to Dr. Thanikaimoni are being gathered at this time.



Robert H. Tschudy, 1908-1986

ROBERT H. TSCHUDY, A MEMORIAL

Robert Haydn Tschudy, a pioneer in the field of palynology, died October 31, 1986. Bob was 78 and, in a sense, at the peak of his long and productive professional career.

Bob Tschudy (or just "Tschudy," as he liked to be called) was born May 7, 1908 in Pocatello, Idaho. He attended the University of Idaho and received his BS, MS, and PhD degrees in botany from the University of Washington. While at the university in Seattle, he met and married **Bernadine Dunsford**, who became his life-long companion and scientific partner. His research specialties at the time were plant physiology and oceanography. Bob and Bernadine often recalled with pleasure their early years together at the Puget Sound Biological Station (later Oceanographic Laboratories) at Friday Harbor in the San Juan Islands off the coast of Washington.

Tschudy's early career, in the late 1930's and early 1940's, included research and teaching. His earliest publications were on marine algae. He conducted research for the U. S. Bureau of Ships while at Scripps Institute of Oceanography. He taught botany at the University of Wyoming, held a post-doctoral position at Cornell University, and then taught biology at Willamette University in Salem, Oregon. During World War II, while at Willamette, he taught premedical courses for the U. S. Navy's V-12 program.

After the war, Tschudy was offered a position with Creole Petroleum Company (an affiliate of Standard Oil) in Caracas, Venezuela, which was to set the direction of the major part of his career. Creole was interested in investigating the utility of

the relatively new field of palynology in oil exploration. Bob and Bernadine went to Caracas to establish a laboratory and develop techniques of studying palynomorphs in the Cretaceous and Tertiary rocks of Venezuela. They were in Caracas from 1945 to 1950.

It was during these years that Tschudy pioneered in developing preparation techniques for palynomorphs and in using them for age determination and correlation of subsurface strata. This laboratory was one of the first of its kind in an oil company.

Always a teacher, Tschudy also taught a course in biology, the first ever, at the University of Caracas, and he taught it in Spanish. Other diversions while in South America included team softball (Bob was the pitcher) and a nine-day trek through the rain forest in the vicinity of Angel Falls.

On returning to the United States, Tschudy chose Boulder, Colorado in which to establish a private palynological consulting laboratory. His partners were Bernadine Tschudy and Constance Ogden. They continued to conduct research for Creole and later for many other petroleum companies, most of which eventually established their own labs and palynological staffs, as the value of palynology to oil exploration became recognized.

Bob and Bernadine returned to South America briefly in 1957 to set up a palynological laboratory for Petrobras in Salvador, Brazil. The Tschudy's own first laboratory in Boulder was in a converted garage. In 1957 they built a combination laboratory and home in a scenic setting in Left Hand Canyon in the Rocky Mountains near Boulder.

Tschudy soon became quite active in community affairs in the Jamestown, Colorado area. He joined the Boulder County Fire Fighters Association (later the Left Hand Fire Protection District) as a volunteer. He was trained as an Emergency Medical Technician, taught First Aid and CPR in several nearby mountain towns, and was a member of the Boulder Red Cross Disaster Team.

In 1962, when oil exploration and consulting were entering another periodic decline, Bob Tschudy joined the U. S. Geological Survey in Denver, Colorado where he began the third phase of his career: the application of palynology to a wide spectrum of geological research. Bernadine was hired soon after and began working with Estella Leopold, who along with Richard Scott, composed the Survey's palynological staff at that time.

Bob's calling as a teacher led him to become an adjunct professor at the University of Colorado, a position he held from the 1950's to the 1970's. Bernadine retired from USGS in 1973, but Bob continued until 1978, and thereafter became first a rehired annuitant and finally a volunteer. His enthusiasm for palynological research never diminished. He was active in the field, in the laboratory, and at the microscope right through to July and August of 1986.

Bob Tschudy's research, while with USGS, led to the publication of 35 scientific papers (his complete bibliography comprises more than 60 titles), including seven U. S. Geological Survey Professional Papers and a textbook, "Aspects of Palynology" (with Richard Scott, 1969). Highlights of his research, for which he will always be remembered among palynologists, include studies on megaspores, pollen of the Normapolles group, and palynofloras of Late Cretaceous and early Tertiary age from the Rocky Mountains and Mississippi Embayment

Ironically, Tschudy's greatest contribution to science may have been work that he began after his retirement. His work on palynology of rocks near the Cretaceous-Tertiary boundary led to his involvement in perhaps the most exciting scientific debate in recent history, the theory that the Cretaceous extinctions were caused by the impact of an extraterrestrial body.

Working with scientists from Los Alamos National Laboratory and USGS, Tschudy used palynology to locate the first iridium anomaly at the Cretaceous-Tertiary boundary to be discovered in nonmarine rocks. He continued to work actively on the nature of the Cretaceous-Tertiary boundary event and its effects on plants up to the end of his life. He introduced the view that vegetation had suffered an unprecedented ecological shock at the end of Cretaceous time, although he did not support the concept of mass extinction among land plants. His last paper on the subject (coauthored by Bernadine Tschudy) was published in August 1986.

Throughout his professional life, Bob Tschudy was a meticulous and methodical researcher who always carefully documented his observations and interpretations. He was a man of imagination, but he never failed to root all of his ideas in reproducible fact. He was a man of dry humor and great personal warmth. An inspiration to students, colleagues, and friends, he will be missed by all.

D. J. Nichols



Bob Tschudy in the field at the Cretaceous-Tertiary boundary, Lance Creek, Wyoming, July 1986.

UPCOMING PRESENTATIONS BY AASP MEMBERS

Palynologists are isolated from other paleontologists, and geologists in general. Palynologists should not hold a separate annual meeting, we should affiliate with one or more other geological associations. Are these assertions correct? I do not know, but they were loudly expressed at the annual meeting in New York.

In order to see if the members (if not the organization) are isolated, we will run this column for a while. If you are presenting a paper, whether it is "pure" palynology or a cross-discipline presentation, at a meeting other than the AASP meeting, please let your associates know. Send me the title and information on where the paper will be presented for inclusion in this column.

Frederiksen, Norman O., and Katharine S. Schindler (U.S. Geological Survey, Reston, VA).

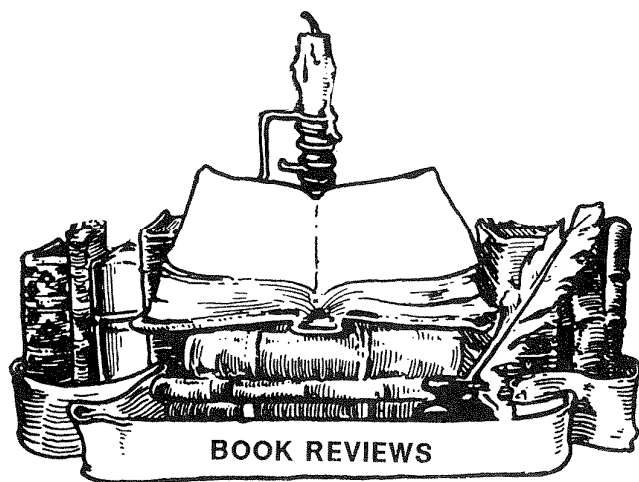
Campanian to Maastrichtian Pollen Biostratigraphy and Floral Turnover Rates, Colville River Region, North Slope of Alaska.

Poster session to be given at the AAPG and SEPM Annual Meeting, June 7-10, 1987, in Los Angeles, California.

V. D. Wiggins and James M. Hill (Chevron U.S.A., Inc., and Calgeo Resources)

The Stratigraphy of the Kenai Group, Cook Inlet, Alaska, and the Application of the Ecological Shift Plot.

This presentation will be given by Virgil at the AAPG and SEPM Annual Meeting, June 7-10, 1987, in Los Angeles, California.



Plankton Stratigraphy.

edited by H. M. Bolli, J. B. Saunderson, and K. Perch-Nielsen. Cambridge University Press, 32 East 57th Street, New York, New York, 10022. 1985. 1024 pp. \$175.

Plankton Stratigraphy is a book every biostratigrapher should have access to. Eighteen specialists have contributed their expertise in eight major fossil groups to provide an up-to-date,

authoritative synthesis of the biostratigraphy of the marine plankton for the Late Mesozoic to Recent.

The overall aim of this tome is three-fold. The first is to provide notes on all biostratigraphically important taxa, including not only the important marker species, but also morphologically similar forms with which they might be easily confused. The editors decided to provide comparative notes on the species rather than taxonomic descriptions, since the latter can be easily found elsewhere. In all, over 3200 taxa are covered and illustrated by more than 7000 individual figures, including many holotypes. In most cases, the taxa are named right on the illustration, and magnification was standardized, facilitating easy comparison between species.

The second aim is to provide the geologic range for each species. This is generally done in the form of range charts, of which there are more than 150.

The third aim is to key the geologic ranges into well established zonal schemes for each group.

The book is divided into 18 chapters. The first chapter is an introduction providing a brief history of the importance of planktic microfossils for biostratigraphy and presenting the aims of the book.

Following the introductory chapter, each succeeding chapter contains an introduction to the planktic group being discussed and usually a brief history of it. This is followed by a discussion of the biostratigraphic zonation of that group, range charts, and illustrations of the taxa, which were of generally uniform high quality. Furthermore, each chapter has its own bibliography. Lastly, the index is divided into sections according to fossil groups.

Chapter 2 is a comparison of the zonal schemes for the different fossil groups. The biostratigraphic zonal schemes for each group are placed next to each other and correlated to the radiometric and magnetic polarity scales of Harland, et al. (1982).

Chapters 3 through 9 cover the planktic foraminifera: The Cretaceous worldwide, the low latitudes and northern mid-latitudes for the Paleocene-Eocene, the Oligocene to Holocene low latitudes, the Paleocene to Holocene Southern mid-latitudes, the Mediterranean Miocene and Pliocene, and the Late Oligocene and Miocene of the Central Paratethys.

Chapters 10 and 11 cover the Mesozoic and Cenozoic calcareous nannofossils, respectively. Chapter 12 details the calpionellids, a group of planktic protozoans of unknown affinities restricted to the late Tithonian to late Early Valanginian within the Tethyan province.

The next five chapters cover the siliceous plankton. Chapters 13 and 14 describe the Cretaceous and Cenozoic radiolaria, respectively. Chapter 15 details the Late Cretaceous to Oligocene diatoms and Chapter 16 covers the Miocene to Holocene planktic diatoms. The silicoflagellates (Late Cretaceous-Recent) are discussed in Chapter 17.

Finally, the Mesozoic and Cenozoic dinoflagellates are covered by **Graham Williams** and **Jonathan Bujak** in Chapter 18, while the final chapter is devoted to the Late Cretaceous and Cenozoic ichthyoliths.

Obviously this is not a book to be read from cover to cover, nor was it intended to be. It is a reference book containing a tremendous amount of biostratigraphic data. Undoubtedly, specialists will quibble about minor details concerning their individual specialty groups, or about the taxa included or left

out. However, as a compilation of useful biostratigraphic taxa to 1984, gathered together in one volume, with the various zonal schemes compared to each other, there is only one book, and this is the one.

The major drawback of this book is its price, \$175. However, for that \$175, one is getting a wealth of biostratigraphic information gathered together in one reference volume, including 7000 figures, 3200 taxa and 150 range charts in 1024 pages.

The authors and editors are to be commended for providing such a fine volume that will certainly set the standard for any similar reference books that follow.

Reviewed by:
Reed Wicander
Department of Geology
Central Michigan University
Mt. Pleasant, Michigan 48859

Numerical Methods in Quaternary Pollen Analysis, by
H. J. B. Birks and A. D. Gordon, 1985, Academic Press,
Orlando, Florida, 32887, 317 + viii pages, \$59.00.

Historically, pollen analytical results have been presented using relative frequency distributions. For the most part, these simple statistical methods have been satisfactory during the development of the field of pollen analysis. With the development of computer accessibility during the past 20 years, and especially within the past decade, high powered statistical analysis has become commonplace. The authors of this particular volume have been the leaders in enhancing the use of statistical methods within the field of paleoecology.

In this volume, Birks and Gordon present a critical review of specific problem areas in paleoecology which have been subjected to numerical treatment of the data. The first two chapters present an excellent overview of the types of data collected and basic statistical concepts. The authors then present methods useful in numerically zoning pollen stratigraphic data. The concept of pollen zones has recently been questioned, but this may be due more to the subjective methodology of previous zonations rather than to inconsistencies within the zone concept. In any event, Birks and Gordon have ably demonstrated the utility of numerically separating stratigraphic sequences and have provided the mathematical background for this analysis.

The more important contributions of this book lie in the latter three chapters. In these chapters, the authors examine methods of comparing regional and local pollen sequences. This type of approach should be of immediate value in establishing regional correlations. Numerous examples of varying methods are provided which allow the reader to judge for himself the appropriateness of the various techniques. Additionally, the algorithms used are presented in a clear and concise manner enabling researchers to adapt them to their specific needs.

Numerical methods are extremely beneficial in analyzing modern pollen data. The methodologies employed clearly show the utility of numerically separating these assemblages and then using the derived data to model modern pollen-vegetational relationships. The mathematical foundation of the techniques employed is very clearly explained in this chapter, and this should go a long way in making the technique more universally applied.

Finally, the computer programs utilized and written by the authors to conduct these analyses are provided in the Appendix. The programs are available for use and can be easily

and quickly adapted for use with individual mainframes or personal computers. The availability of the programs in one place is, in itself, worth the price of the volume.

In general, the information is presented logically and concisely, in a straightforward manner. The diagrams are very clear and illustrate the point they are making. The pricing of this volume is certainly competitive with other important volumes. Statistical analysis of large data sets is becoming commonplace and as such, the procedures involved must be completely understood by the field. This volume is extremely useful for those of us trying to catch up as well as for incoming students. The book is well worth the price and should be a welcome addition to the libraries of all palynological laboratories.

Reviewed by:
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Marine Micropaleontology of China, edited by Wang Pixian.
China Ocean Press, Fuxingmenwai Street, Beijing, China.
Available from Springer-Verlag New York, Inc., 175 Fifth
Avenue, New York, New York, 10010. 1985. 370 pp. \$85.

As the People's Republic of China opens its doors to the West, there has been a renewed interest in the geology of the mainland as well as the offshore areas, both from an academic as well as a hydrocarbon exploration viewpoint. Unless one reads Chinese, getting information on Chinese geology is difficult.

It has only been in the last five years that China has allowed foreigners a look at its geologic research in progress. Thus, a book written in English that provides an overview of Neogene to Recent micropaleontological research in the coastal areas of China is a most welcome addition to the literature.

Marine Micropaleontology of China is a collection of 17 papers covering various aspects of the Cenozoic calcareous microfossils in the shelf seas off China. The papers presented in this volume are the result of academic as well as hydrocarbon exploration research in these areas during the early 1980's.

The first chapter provides an excellent summary (complete with tables and sketch maps) of the geologic history of the Bohai Gulf, the Huanghai Sea, the East China Sea shelf and the north shelf of the South China Sea. This history is developed from the micropaleontological data accumulated from years of study and provides a sound foundation and framework for the rest of the book.

The rest of the book is devoted to this vast amount of micropaleontological information. Several papers deal with the distribution of foraminifers and ostracodes in the sediments of the various shelf areas, while one paper is concerned only with distribution of calcareous nannoplankton in the East China Sea. All of these papers make generous use of maps, showing the distribution of the taxa. These distribution maps are clear and easy to read, reinforcing the data and discussions presented in the text. Other papers deal with the usefulness of foram and/or ostracode assemblages in the reconstruction of the geologic history of the area.

All of the papers are generally interesting, well illustrated and easy to read. The book as a whole provides a valuable

amount of micropaleontological information for anyone interested in the Cenozoic history of the shelf area of China.

There is also an index of Chinese geographical names in English with corresponding Chinese characters which would be useful to anyone with a Chinese map. The book concludes with 38 plates of black background photographs of the various taxa. These plates are keyed to the respective chapters. The photographs for the most part are adequate, but generally not up to Western standards.

There were the usual minor printing errors, but these were mostly transpositions of letters and, after all, how many of us would be able to pick out spelling errors if the book was written in Chinese!

Overall, this book is to be recommended to anyone interested in the micropaleontology of the shelf sea area of China. However, its price (\$85) will probably deter most personal purchases, which is unfortunate.

Reviewed by:
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A Stratigraphical Index of Conodonts, edited by A. C. Higgins and R. L. Austin. Ellis Horwood Ltd. for the British Micropaleontological Society. Available from John Wiley & Sons, Inc., 605 Third Avenue, New York, New York, 10158. 1985. 263 pp. \$45.

A Stratigraphic Index of Conodonts is part of the British Micropaleontological Society series on selected faunal groups that is aimed at both the specialist and nonspecialist geologist. This particular volume concerns conodonts of the British Isles and is an outgrowth of the fourth European Conodont Symposium that took place in 1985.

The first chapter is an introduction to the conodonts and is divided in sections that discuss morphology, assemblage of elements, function, zoological affinities, classification, paleoecology and application. It concludes with a reasonably up to date bibliography. The introduction provides an excellent overall view of conodonts for the nonspecialist.

The following six chapters are devoted to the conodonts of the Cambrian through Permian systems from Great Britain. Each of these chapters is written by the best expert(s) available and generally follows the same format.

Thus, each chapter begins with a history of conodont studies for that system in Britain, followed by a detailed review of conodont localities, and a brief synopsis of important depositories of conodont collections in Britain. These sections are followed by a discussion of chronostratigraphy, the role of facies and its control on conodont faunas, and a fairly detailed bibliography. The stratigraphically important conodonts for each system are beautifully illustrated, and a diagnosis of each illustrated species is included in the plate explanation.

By following the same format for each chapter, there is a generally high degree of consistency from chapter to chapter. However, the emphasis each author(s) places on a particular section does vary between chapters. This is a result partly of the completeness of the system in Britain.

There are the usual minor problems in a book of this type, such as a lack of definitions of some morphological terms,

inconsistency in abbreviations of periodicals, and a few misspellings.

These are all minor problems which could have been corrected by the editors, but really do not detract from an otherwise excellent book.

A Stratigraphical Index of Conodonts is recommended to anyone interested in Paleozoic and conodont biostratigraphy, as well as British Paleozoic geology.

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Handbook of Holocene Paleoecology and Paleohydrology, edited by Bjorn Bergland, 1986, John Wiley and Sons, New York, 869 + xxiv pages, \$115.

Bergland and his contributors are to be congratulated for producing an invaluable reference guide applicable to any Holocene study. This volume is a complete, authoritative and current treatment of its topic.

The volume is divided into eight major sections. The general background chapters are followed in a progression by discussions of research strategy, sampling techniques, dating methods, data bases, and finally, the numerical treatment of data.

The initial section deals with overviews of Holocene environmental changes which have occurred. Birk's (Chapter 1) characterization of multiple phases is intriguing, if not universally applied as yet. The discussions of lake sediments (Dearing and Foster) and mire environments (Moore) provide the necessary background in paleohydrology for those not conversant in that field.

The next section (Chapters 4-7), on research strategies, is a welcome addition to standard reference texts. In this section the authors have examined in some detail the underlying precepts of paleoecology and have successfully attempted to provide outlines for the investigation of many different locales and deposits.

The section on sampling and mapping techniques includes four chapters (Chapters 8-11) on various techniques employed in data collection. Aaby and Digerfeldt (Chapter 8) provide an excellent overview of sampling methods for paleoecological data, which should be an integral part of any academic course in this field.

The next section, on stratigraphic methods, complements the section on sampling. These two chapters provide extensive overviews of methods currently in use to describe sediment type variations.

The following section provides an overview of various methods used in dating the recent sediments of the Holocene. Extensive discussions of radiometric techniques include many types which are important for dating short term effects of the late Holocene. In addition, techniques are outlined for tephrochronology (Einarsson, Chapter 16), laminated sediments (Saarnisto, Chapter 17), and dendrochronology (Munaut, Chapter 18, and Bircher, Chapter 19).

The next section pertains to physical and chemical methods and is composed of two chapters (Chapters 20-21). Siegenthaler and Eicher (Chapter 20) provide an excellent discussion

of stable oxygen and carbon isotope analyses. The procedures involved and their interpretation in limnology are discussed. Other forms of chemical analyses are discussed in the Chapter 21 by Bengtsson and Enell

The largest section, in terms of number of chapters, is devoted to the analyses of forms of biological data. Each chapter provides an excellent overview of the current techniques employed in a particular specialist. The chapters discuss microfloral components (pollen, diatoms, algae), macrofloral analyses (fruits and seeds, wood Byrophytes, charred particles), as well as fungi, blue-green algae, and microfaunal remains (e.g., Ostracods, mollusks, Chironomids, and Cladocera). This section will be extremely useful in a wide variety of advanced undergraduate and graduate level courses.

The final section (Chapters 37-41) with the numerical analysis of data. These chapters essentially explain techniques that can be utilized to tie together enormous quantities of data in a manageable format. It is essential that both researchers and students be knowledgeable of these various techniques, and this volume goes a long way in achieving that goal.

The articles in this volume are extremely well written and presented. One of the greatest contributions of this book is that it explains the basic methods and procedures of a wide range of specific disciplines which can be easily understood by non-specialists. Thus, for this reason alone, this volume is an absolute necessity for Quaternary scientists.

The extensive bibliographic references in each chapter provide an excellent source of additional information. The diagrams are well produced and effective. In spite of the enormous amount of information presented, the chapters are quite readable.

The emphasis of this book, understandably, is European; however, it would have been nice to see a few more case studies from areas outside Northern Europe. While the techniques and methods described in this volume can very be applied to other regions, it would have, perhaps, been more in keeping with the international focus of this project, had the authors drawn on additional geographic regions for their case studies.

The only serious drawback to this volume lies in its price of \$115 (U. S.). This effectively precludes its use as a classroom textbook, a function it is imminently suitable to perform. At this price, it may well be out of the price range for most professionals, let alone students. In spite of the high cost, I highly recommend this volume to anyone involved in the study of late Quaternary and Holocene deposits.

Reviewed by:
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Contouring Geological Surfaces with the Computer, by Thomas A. Jones, David E. Hamilton and Carlton R. Johnson, Van Nostrand Reinhold Company, New York, New York, 1986, 314 pp., \$37.95.

If you are interested in using computers to contour geologic surfaces, you will want this book in your library. The authors have carefully balanced discussion between that which considers how the computer handles material and how that, in turn, affects the portrayal of the geology being studied.

While the authors present a logical analysis of the normal and unusual situations encountered in contouring geological surfaces, such as simple folds, faults and unconformities, the great value of the book for most geologists will be in the guidance it provides in evaluating contouring programs. Appendix A contains a concise outline of the capabilities one should consider either when purchasing a contouring program or when designing a contouring program. Appendix B contains data for a stratigraphic example that can be used to test a program.

The twelve chapters of the book move smoothly from simple to more complex problems so that it is not necessary for one to be a computer specialist to understand most of the material. This book should not be one's first exposure to computers, however. A good understanding of geologic mapping probably is required to get the most from this book. The early chapters introduce one to the special problems of computer contouring; the middle chapters deal with gridding, data characteristics, displaying stratigraphic relationships and faulting. The final chapters deal with selected petroleum applications, trend analysis and historical reconstruction (geologic time).

Contouring Geologic Surfaces with the Computer would make an excellent textbook for a course in computer mapping. It will probably be most valuable, however, to those geologists just beginning to use computers for geologic contouring, by those contemplating purchase of a contouring program, and by those wanting to understand more about computer contouring. By learning what to look for in a contouring program, one could save far more than the cost of the book.

Reviewed by:
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Cladistic Biogeography, Humphries, C. J., and L. R. Parenti, 1986. Monographs on Biogeography No. 2, Oxford University Press, 98 p., \$35 (U. S.), hardcover.

Someday I would like to sit down to a new book with "cladistics" in its title and find a thoughtful, balanced presentation of cladistic methodology, complete with a discussion of both its strengths and weaknesses in comparison with other methods of ordering biological data. This hypothetical book would then finish with an example of a research problem in which the use of cladistics has generated ideas which are not merely surprising but, upon reflection, highly plausible.

Cladistic Biogeography is not the book. Humphries and Parenti have, instead, adopted a single-minded approach to their subject, which involves touting cladistics as the solution to all problems, while ignoring evidence from ecology, paleontology, and geology. Consequently, their treatment of the subject is unconvincing.

The book is divided into four parts. The first consists of a brief history of biogeography.

The second part deals with methodological developments in cladistic biogeography. Although the authors satisfactorily explain the theory behind cladistic classification, they do not provide any details about cladogram construction. Cladograms do not spring full formed from the forehead of Zeus, and cladistic biogeography can be no better than the classifications on which it is based. Potential pitfalls should have been clearly mapped out.

Emerging from the thicket of cladograms in part 2 (did you know that there are 15 possible cladograms for four areas?), we find ourselves in part 3 entitled, "The Real World." After briefly touching on a few examples (some real, some hypothetical), the authors compile a list of 26 axioms which should govern cladistic biogeography (well, Luther came up with 95 theses, after all, so 26 is not really any big deal). A selection of these axioms are:

12. All taxa, regardless of their presumed age or inferred dispersal ability, are treated equally in deriving biogeographic patterns.
22. Fossils have no special role in cladistic biogeographic studies except to help in rejecting geological hypotheses that we suspect may have caused a pattern.
23. Geological hypotheses of area relationships are no more or less reliable than area cladograms derived from biological data.
24. Geological hypotheses do not test biogeographical patterns.

It is fair enough to insist that observations (in this case, biogeographic patterns) be separated from interpretations. To suggest, however, that the interpretation of biogeography can exist in a vacuum, without reference to all available information, is doubtful.

Organisms disperse. Some of them do it poorly; some do it quite well. Any biogeographical hypothesis which cannot deal with the wealth of information available concerning dispersal is not likely to be complete.

Likewise, the fossil record includes information which biogeographers ignore at their peril. Biogeographic maps do not record the total distribution of the modern taxa under study. Rather, they are maps of samples collected by systematists, subject to a margin of error dictated by the density of sampling, competence of the collectors, and chance. The fossil record should be viewed in the same way. Not as a simple listing of first and last appearances to be taken at face value, but as a sample of a taxon's past distribution. Evaluated critically, the fossil record can provide powerful tests of biogeographic hypotheses.

Perhaps most disquieting in the present work is the complete absence of any discussion of probability. How many congruent cladograms make a pattern? How do we put error bars on our interpretations? How do we decide how much overlap between the ranges of unrelated taxa is necessary before we can include them in the same area of endemism? You will not find the answers here.

Part 4 is entitled, "A New View of the World." Based in part on a supposed Jurassic (?) origin of the southern beech *Nothofagus*, the authors present a baffling model (perhaps including a drafting error?) which purports to explain both austral and amphitropical (distribution in both hemispheres outside the tropics) distribution patterns.

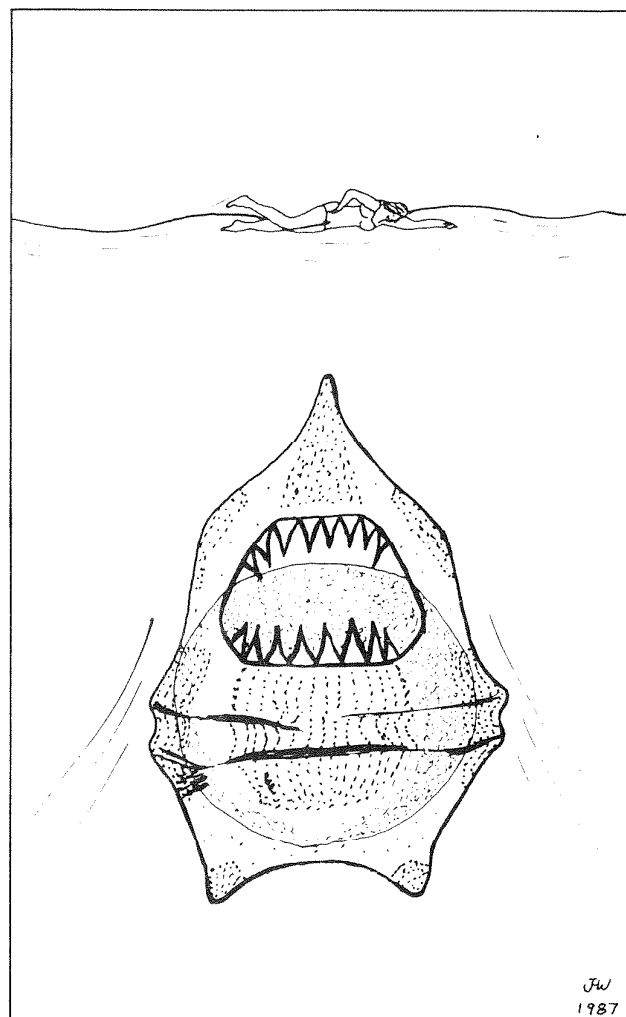
A map is provided which shows the distribution of both modern and fossil *Nothofagus*, but the ages of the fossils are not indicated. No reference is made to palynology (*Nothofagus* has distinctive, wind-dispersed pollen), much less to the Deep Sea Drilling Project. No plate tectonic reconstructions are illustrated. Compared to the elegant synthesis of the fossil record of *Nothofagus* presented by Tanai (1986), the discussion in the present work is both vague and unsatisfying.

After reading *Cladistic Biogeography*, it is tempting to dismiss the entire subject as a sterile academic exercise. This may be unwise. There may be some useful principles which eventually shake out of it, although we will have to wait for a more thoughtful treatment than is presented by Humphries and Parenti to find out what those principles are.

The book is handsomely bound, but charging \$35 for a 98 page monograph without plates in these days of tight library budgets borders on the criminal (particularly for a university press). Give this one a miss.

Tanai, T. 1986. Phylogeographic and phylogenetic history of the genus *Nothofagus* Bl. (Fagaceae) in the southern hemisphere. J. Fac. Sci. Hokkaido Univ., ser. IV, 21:505-582.

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!!! ARCHEOPYLE !!!

THE EDITOR'S COMMENTS

It is fitting, as the new editor of the Newsletter, that I extend to Bob Ravn the thanks and appreciation of the AASP membership for his outstanding editorial service of the past three years. Bob performed admirably, often under difficult and "shifting" circumstances. Bob's various job changes and relocations, chronicled in his editorials, bring to mind the perambulations of Coronado *et al.* in search of the Seven Cities of Cibola.

We will miss Bob's dry--nay, Saharan--sense of humor in the pages of the Newsletter. However, I plan to cajole an occasional essay out of Bob--just to dehumidify things a bit.

I personally thank Bob for the honest, straight-forward and objective column in the last Newsletter in which he announced the cessation of his "reign of terror" as editor and the dawning of a new enlightened age (my paraphrasing) under the editorship of his successor. This announcement was devoid of his characteristic tongue-in-cheek humor. Thanks, Bob. (You were right, it was worth every penny of that \$50.)

Bob was very helpful in transferring the responsibility of editing the Newsletter to my creaking shoulders. He even included mailing instructions. At first, I thought that they were another exhibition of Ravnian expository flim-flam. (I've since learned 'tis not so.) His instructions follow what would you think?

MAILING

"Newsletter mailing breaks down into six categories:

1. U.S.--Bulk mail, presently 12.5 cents per piece, basic third class rate (details on the organizing of this follow)
2. Canada and Mexico--First Class, 40 cents (in envelopes)
3. Foreign surface mail--Stamped "PRINTED MATTER", 47 cents (in envelopes)
4. Foreign airmail, Venezuela & Colombia--89 cents (in envelopes)
5. Foreign airmail, the rest of South America, Europe, Egypt, Libya--\$1.12 (in envelopes)
6. Foreign airmail, the rest of Africa, Asia, Australia--\$1.35 (in envelopes)

"All airmail must be stamped "AIR MAIL" and "PRINTED MATTER"; as I mentioned by phone, you can save a lot of time by simply having "PRINTED MATTER" printed somewhere on your envelopes, along with your return address. Then you can use the enclosed rubber stamps to take care of the other designations as appropriate.

"Foreign mail, with all its envelope stuffing and stamping, is a straightforward hassle. U.S. bulk mail, on the other hand, is a convoluted, mysterious, enigmatic hassle. It goes as follows:

"I get the newsletters from the printer collated and stapled in the upper left-hand corner. For the 500 or so U.S. issues, I fold in the middle and staple closed at the bottom. The cover is designed to function then as a return address and label space. Once labelled, the best thing to do is to sort them into state destinations; again, you can save a lot of time by having your labels sorted by zip code (resist the temptation to alphabetize by name, which serves no purpose other than to aggravate your task).

"I have enclosed a green-covered booklet from the postal service detailing how they want bulk mailings handled. Read it if you have nothing better to do, or if you want amusement; even the postal clerks who accept the mailings don't really

understand it. After three years, I finally learned what they more or less expect.

"The first thing you need to do is to obtain your bulk mail permit (a yearly \$50 fee) and your mailing imprint permit (a one-time \$50 fee), the latter of which allows you to have the BULK MAIL PERMIT NO. etc. designation printed on the Newsletter. When you go to mail the Newsletters, you need to make a deposit with the clerk before you hand over the mailing; this usually runs about \$65. Every post office (I used three different ones) seems to handle this a little differently, so you may have to act stupid and ask.

"The big and mystical hassle, however, is the organizing of the bulk mailing. Once you have things sorted into individual states, start with the big ones, e.g., Texas, California, Colorado, and check for any that have ten or more Newsletters going to the same identical zip code. Separate these out and bind individually with rubber bands (sometimes available for free at the post office); then affix a little red D sticker to the front of the outside Newsletter.

"After that, go through again, and separate out piles of ten or more that have the same first three numbers of zip codes. Bind these, and affix a green 3 sticker. Then, for any individual state for which you still have ten or more Newsletters left, bind together and affix an orange S sticker. Finally, for all those little dinky states, South Dakota and Vermont and Mississippi, etc., bind randomly in bundles of ten or more and affix some homemade sticker that says MIXED STATES (I've enclosed a few extra of my own creations); for some reason, even though they want this, the postal service does not have a ready-made sticker for the purpose.

"Once all this bureaucratic nonsense is accomplished, get three mail sacks from the post office, and divvy up your bundles into one bag for Texas, it being such a big and important state and all, and two bags of Mixed States. The clasp on the bags is designed to allow the attachment of a little paper tag designating their disposition. These may be available ready-made from your post office, or they may not; at the very back of the green bulk mail booklet is a list of destination labels for these tags. The Mixed State bags will need simply one that lists your post office location and zip code, plus the destination "MIXED STATES"; the Texas one will need your post office and zip, plus the destination "BMC Dallas TX 742". Ask your friendly clerk for clarification of all this. Oh, by the way, we mail Letters, not Flats.

"Finally, the filling out of the form: The information on the form as given in the green booklet is obsolete (you may want to get an updated green booklet, although it may make you fear for your sanity). They went from a short half-page form to a large full-page form, of which I've enclosed a couple of copies, one of which has the appropriate boxes checked that you will need to fill out. This is surrendered along with your bags of mail to the bulk mail counter at your post office. When he walks away with them, you are done and should go get a beer. Incidentally, bulk mail offices at the post office are open stinger bankers' hours, so as to most greatly inconvenience customers. Call me if any of this is too confusing, and I'll try to enhance the confusion."--Bob

Well, there you have it. It's enough to make me look forward to filling out my new income tax form. Why, it is even enough to bring a flush of passion and envy to the cheek of the coldest hearted bureaucrat! (Why hadn't they thought of comparable instructions for their department?)

Thanks for your help and a job well-done, Bob.

UPDATE OF REVIEWERS FOR PALYNOLOGY

Dave Goodman has recently succeeded **Doug Nichols** as Journal Editor for *Palynology* (Doug remains on as AASP Managing Editor), and he would like to assemble a new list of technical reviewers for the Journal (the last such list was assembled in 1983!). AASP's Editorial Staff maintains a file of members who have volunteered to provide technical reviews of manuscripts for *Palynology*. Periodically, we solicit additions and updates by way of a return-form such as the one that appears below. Members may assume that because they filled in and sent such a form once, they need not do it again. But a member's interests and even research specialties can change over time. Our files now date back at least four years, and we must rely on more recently submitted forms to be sure that potential reviewers are still willing to provide the essential service of manuscript review.

Once again, we request that AASP members who are willing to review manuscripts send in a form specifying their areas of research competence. Please return the form if you wish to act as a reviewer, even if you think you have done so in the recent past. I am going to put together an entirely new list of reviewers for my immediate use and I need this information from all members as quickly as possible. I want to have a list that spans the entire spectrum of palynological research, so please send in a form no matter how esoteric or generic your palynological interests might be. I appreciate your help.

REQUEST FOR REVIEWERS (JANUARY, 1987)

Name _____

Address _____

_____ Telephone _____

Microfossil Group(s) _____

Geologic Age(s) _____