

# PALYNOLOGOS

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NEWSLETTER of the INTERNATIONAL FEDERATION of PALYNOLOGICAL SOCIETIES

## IFPS VICE-PRESIDENTS ELECTED!

IFPS President Owen Davis has announced that the following individuals have been elected to IFPS office. Due to space limitations in this issue, photographs will not appear until the June issue is printed.

MADLINE HARLEY (Actuopalynology)  
Royal Botanic Gardens, Kew  
<mh12kg@lion.rbgekew.org.uk>

Dr. Madeline Harley (Ph.D., FLS) has worked in the Palynology Unit of the Herbarium, Royal Botanic Gardens, Kew, almost since its inception (May 1973), making a volte-face from art to science when she accepted the position of assistant to Dr. Keith Ferguson in his newly conceived venture. English by birth, inclination and residence, born and educated in Norfolk, England, Madeline is a long term inhabitant of west London where her two sons were born in 1966 and 1972. She recently completed her Ph.D. on Palm Pollen and the Fossil Record under the supervision of Prof. Mike Boulter (UEL) and Dr. John Dransfield (RBG, Kew). Dr. Harley is a member of a number of professional societies including APLF, Systematics Association, ABLE, IAAP, IOP, AASP and BMS, and is also President/Secretary of the Linnean Society Palynology Specialist Group. Her research interests are mainly in actuopalynology, but she is also interested in palaeopalynology in relation to recent plant families, particularly the Palmae and its fossil record in the Southern Hemisphere. She has published systematic pollen morphological studies for groups of plants in a number of families including Limnocharitaceae, Commelinaceae, Menispermaceae, Rutaceae, Amaranthaceae and Euphorbiaceae, and has monographed the pollen morphology of the Sapotaceae. Her current

research interests center on the Palmae but she has active secondary interests in the Burseraceae, which is being monographed for the World Pollen and Spore Flora, and also the Labiatae.

As Vice President for actuopalynology, Dr. Harley will focus on the importance of extant pollen data in plant systematics, and for deciphering the fossil pollen record in relation to recent plant families. She is also actively encouraging the formation of national palynology groups affiliated to the IFPS, particularly in countries where extant palynology has few researchers and little opportunity for discussion and exchange of ideas.

STEFAN PIASECKI (Paleopalynology)  
Geological Survey of Greenland  
<piasecki@geus.dk>

Dr. Stefan Piasecki (Ph.D) joined the Geological Survey of Greenland as a Ph. D. student in 1977 and has continued working with the geology of Greenland; he is now senior research scientist in the Geological Survey of Denmark and Greenland. Born and raised in the capital of Denmark, he studied geology and palynology at the University of Copenhagen where he got his Ph.D. degree in 1980.

Stefan Piasecki is a member of Collegium Palynologicum Scandinavicum and has been on the board of CPS since 1987. He is also on the editorial board of GRANA and is a member of AASP.

Stefan's research interests focus on subjects that associate palynology and geology; fossil spores, pollen and dinoflagellate cysts, biostratigraphy, organic debris, thermal diagenesis, sedimentology, sequence stratigraphy and petroleum geology. Petroleum related field work in Upper Palaeozoic and Mesozoic basins of the Arctic East and North Greenland forms the basis for these studies.

ANA TERESA ROMERO  
Granada University, Spain  
<atromero@goliat.ugr.es>

Dr. Ana Teresa Romero (Ph.D.) has been a permanent member of the faculty of Granada University, Andalucia (Spain) since 1987. She was born in Granada in 1957, and enrolled at Granada University in 1975. Ana finished her Ph.D., which focused on the taxonomy of the grasses, in 1985. She is a member of several national and international associations, including BSA, IOPB, OPTIMA, and APLE. She is interested in the pollen morphology of the Cactaceae, Cruciferae, Compositae, Papaveraceae, and the endemic flora of the Mediterranean area. Her research includes pollen biology, and the cytology and ontogeny of different species of *Fumaria*, *Opuntia*, and the Cruciferae.

Further news from our President includes the following information:

Check out the IFPS web site at <http://geo.arizona.edu/palynology/ifps.html>. It has the e-mail addresses of the IFPS Officers and the Councillors of all IFPS affiliate societies. And, it has links to the web pages for the those affiliate societies who have such. Currently, four societies host web pages:

AASP  
<http://opal.geology.utoronto.ca/AASP/>  
ALPP  
<http://www.concytec.gob.pe/alpp/index.htm>  
CAP  
<http://gpu.srv.ualberta.ca/~abeaudoi/cap/cap.html>, and  
CPS  
<http://www.centrum.dk/users/piasecki/cpsdk.htm>  
(Please let us know if we've missed someone!)  
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<http://geo.arizona.edu/palynology>  
<http://geo.arizona.edu/antevs/surficial.html>

#### MESSAGE FROM THE EDITOR

In addition to having news from the President, I, the Editor, decided to present a small message of my own. It has been a year since I took on the job of assembling

and editing these newsletters. I presume that they are providing the service that they are intended to provide because I haven't heard any complaints. There have been mailing delays, and a package to China was left in a storage room for several months before being returned to me, but otherwise I think things have gone well. I must say that it has been a pleasure to work on the newsletters because this provides me with a means to keep current with palynological events around the world, and I have been able to locate a printer that is a joy to work with. What makes these issues of PALYNOS most valuable, however, is the flow of contributions which you, the readers, send for inclusion in the newsletters. The nature of news items changes with the seasons it seems; the last issue contained several notices of meetings, while this issue has several reviews and notices of publications which are available. It is my intention that any newsworthy item will be published in this newsletter, particularly if it addresses the need for the international community of palynologists to remain informed of events, publications, and scientific findings in palynology. I hope you enjoy this issue, and I urge all of you to consider sending notices to me that you believe would be of general interest to the international community. The next issue is due for publication in June, 1998. My address is listed on the last page of this issue, and I would be very pleased to hear from you.

Fredrick J. Rich  
Editor

#### MEETING NOTICES

##### IPC 10 -- Year 2000!

It's not too early to start thinking about the next International Palynological Congress. The Chinese Organizing Committee and the PSC (Palynological Society of China) Representative (Genwu Liu) are hard at work planning for the best IPC ever. The current plans are for the meeting to be held in Nanjing in July, 2000, to coincide with the time and place of the Paleobotanical Congress. Professor Liu promises that the registration costs will not exceed those of the ninth IPC. Accommodations will range from U.S. \$20 - \$30 for student dorms to over \$100 for 5-star hotels. Ten field trips are planned (four pre-meeting, six post-meeting) costing up to \$1000 for exotic excursions to Tibet or Xinjiang Province. Several of the field trips will feature Quaternary topics, and trips are planned to visit Mesozoic, Paleozoic, and Precambrian sections. The American Association of Stratigraphic

Palynologists is very pleased to announce the time and place for its next meeting. The AASP Annual Meeting for 1998 will be held at the Hotel Coral and Marina in Ensenada, Baja California, Mexico, from October 27-31, 1998. There will be a workshop on Jurassic dinoflagellates, as well as technical sessions and a poster session. There will also be a one-day field trip in Baja California to explore botanical and geological gradients between Pacific and Gulf coasts. Palynologists who have never visited this fascinating corner of North America are encouraged to give serious thought to attending this meeting. The vegetation of Baja is legendary for its uniqueness, and this meeting will present an excellent opportunity to justify a trip to northwestern Mexico. For more details please contact Dr. Javier Helenes, CICESE, Departamento de Geologia, Ensenada, Baja California, Mexico.  
e-mail: [jhelenes@cicese.mx](mailto:jhelenes@cicese.mx), or Cristina Penalba, UNAM, Instituto de Ecologia, A.P. 1354, Hermosillo 83000, Sonora, Mexico, e-mail: [penalba@servidor.unam.mx](mailto:penalba@servidor.unam.mx).

The Fifth European Palaeobotanical-Palynological Conference is to be held from June 26-30, 1998, in Cracow, Poland. The conference will have simultaneous technical sessions that will focus on several different topics. These will include Paleozoic-Mesozoic, Tertiary, Pleistocene, and Holocene Sections, as well as a General Palaeobotany Section. The working language of the conference is English. Two excursions will be offered during the conference, and four post conference trips are planned.

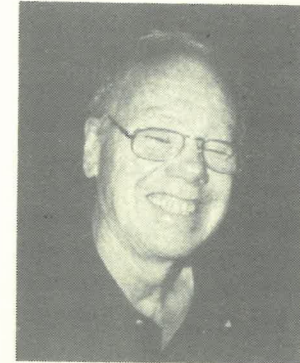
The conference is to be held at the Academy of Physical Education, Main Building, at 72 Jana Pawla II Avenue, Cracow, Poland. The organizing committee for the conference is Leon Stuchlik, President; Ewa Zastawniak, General Secretary; and Grzegorz Worobiec, Secretary. Anyone who wants further information should contact the following person:

Mgr Grzegorz Worobiec  
Secretary of the 5th European Palaeobotanical-Palynological Conference  
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Polish Academy of Sciences  
Lubicz 46, 31-512 Cracow, Poland  
FAX (48 12) 4 21 97 90  
e-mail: [worobiec@ib-pan.krakow.pl](mailto:worobiec@ib-pan.krakow.pl)

#### A BIT OF IPC HISTORY

A year ago David Jarzen sent a photograph, and a brief

letter, to the editor. The photo is as you see printed here - a portrait of a smiling John Rowley. John has the unique distinction, according to David, of being the only person to have attended every International Palynological Congress since the inception of IPC. With somewhat belated congratulations, and warmest wishes that he may attend nine more IPC's, here's a toast to John Rowley - see you in Nanjing, John!



#### RECENT PUBLICATIONS

A number of publications that may be of interest to many readers of PALYNOS are identified here.

from DAVID DILCHER, FLORIDA MUSEUM OF NATURAL HISTORY

Dr. David Dilcher announces that two excellent volumes on the fossil flowering plants of the USSR are on sale. *Fossil Flowering Plants of USSR, Vol. 2* is available. It deals with the Ulmaceae, Moraceae, Cannabaceae, Urticaceae, Fagaceae, and Beulaceae. Edited by A. Takhtaja in 1982, and printed in Russian by Ivan Federov Printing House, it has 215 pages covering 40 genera. There are 172 plates, 132 text figures of leaves, fruits, seeds, and flowers, and 700 photographs of specimens.

*Fossil Flowering Plants of Russia and Adjacent States, Vol. 3*, is also available. It covers the Leitneriaceae, Myricaceae, and Juglandaceae. Edited by Lev Budantsev, and printed by Federov in 1994 it has 133 species described and illustrated. There are 700 photographs of specimens.

Geographic and stratigraphic distributions for each species, synonymies, and important features are listed for all species in both books. Interested persons should contact David Dilcher at the Florida Museum of Natural History, University of Florida, P.O. Box 117800, Gainesville, Florida, USA 32611-7800. The price per

volume is US \$49.00 plus shipping (US \$7.00 in North America; US \$10.00 overseas). Checks should be made payable to David Dilcher.

from the NATIONAL MUSEUMS AND GALLERIES OF WALES

Dr. Heather Pardoe of the National Museums and Galleries of Wales would like everyone to know that the Bibliography of European Palaeobotany and Palynology 1994-95 is available. It was compiled by B.A. Thomas, C.J. Cleal, H.S. Pardoe, and H.F. Fraser. The report consists of a list of publications produced by palaeobotanists and palynologists throughout Europe in 1994 and 1995. There is also a list of publications in press (at the time of publication of the Bibliography, November, 1996), and current research interests and addresses of a large number of scientists. The 163 page Bibliography is divided into sections according to geological periods, general palaeobotany, general palynology, Ph.D. theses, papers in press and current research, research visits, fieldwork, etc., and concludes with an address list.

While Dr. Pardoe had asked a year ago that we print a review of the Bibliography, and the Editor did look it over in a cursory fashion, no one has written a review. In the interest of getting this notice out to readers of PALYNOS we are foregoing the review, except to say that this is a very informative volume. Furthermore, the editors and contributors have been very honest in their presentations. I (Fred Rich) was interested to see that in the list of publications dealing with the Pre-Cambrian there is one written by C.J. Peat (1994) entitled "The unsuccessful search for microfossils in Charnian rocks". We don't oftentimes publish the results of unsuccessful work, though most of us have probably had to deal with such results. Another publication, written by Currie, Koppelhus, and Fazal (1995) is entitled " 'Stomach' contents of a hadrosaur from the Dinosaur Park Formation (Campanian, Upper Cretaceous) of Alberta, Canada" and illustrates the eclectic nature of the contents of the Bibliography; it is not strictly European in its focus.

Anyone who would like to purchase a copy of the Bibliography should contact Miss H.E. Fraser, Department of Botany, National Museums and Galleries of Wales, Cathays Park, Cardiff, CF1 3NP, United Kingdom. The cost is 5 Pounds British, including postage and handling. Credit card payments can be made by using a form on the IOP homepage (<http://ibs.uel.ac.uk/ibs/palaeo/pfr2/cleal.htm>).

Additional titles which are still available include:

Report on British Palaeontology and Palynology 1988-89  
Bibliography of European Palaeobotany and Palynology 1990-91  
Bibliography of European Palaeobotany and Palynology 1992-93

They all cost the same as the latest issue of the Bibliography, or you can purchase the set for 25 Pounds.

from the ROYAL DUTCH GEOGRAPHICAL SOCIETY

Wim Hoek would like to bring the following list of publications to everyone's attention. The NGS numbers refer to numbers in a series of publication released under Netherlands Geographical Studies:

NGS-217. H. Renssen. 1997. The climate during the Younger Dryas stadial: Comparing atmospheric simulation experiments with climate reconstructions based on geological evidence. This study describes the results of model experiments on the Younger Dryas. Emphasis is on Europe, although the global response to Younger Dryas boundary conditions is also discussed. Furthermore, this thesis offers an extensive comparison with climate reconstructions for northwestern Europe. ISBN 90-6809-237-5, 192 p., Dfl 38.00.

NGS-229. R.F.B. Isarin. 1997. The climate in north-western Europe during the Younger Dryas: a comparison of multi-proxy climate reconstructions with simulation experiments. In this publication, climate reconstructions based on Younger Dryas geological and palaeoecological data from northwestern and central Europe are presented and discussed. In addition, the quantitative reconstructions have been compared with results from climate model experiments. ISBN 90-6809-249-9, 160 p., Dfl. 32.00.

NGS-230. W.Z. Hoek. 1997. Palaeogeography of Lateglacial vegetation: aspects of Lateglacial and Early Holocene vegetation, abiotic landscape, and climate in the Netherlands. In this study, aspects of the Lateglacial and Early Holocene vegetation, abiotic landscape, and climate in The Netherlands are discussed. The publication consists of 7 chapters, and a critical evaluation is presented considering the relationships among climate, the abiotic landscape, and the development of vegetation in The Netherlands. ISBN

90-6809-250-2, 160 p., Dfl 32.00.

NGS-231. W.Z. Hoek. 1997. Atlas of palaeogeography of Lateglacial vegetation: maps of Lateglacial and Early Holocene landscape and vegetation in The Netherlands, with an extensive review of available palynological data. Landscape and pollen distribution maps of selected plant taxa for different time-windows during the Lateglacial and Early Holocene in The Netherlands are presented. Iso-pollen maps and pollen abundance maps, based on 260 pollen diagrams show the changes in vegetation composition and patterns in time and space. A selection of pollen diagrams from different regions with selected species is included. The review of the Lateglacial and Early Holocene pollen diagrams in The Netherlands and adjacent regions provides a compilation of over 500 pollen diagrams for the period under consideration. ISBN 90-68-09-251-01, 172 p., Dfl 38.00.

Publications in this series can be ordered from KNAG/NETHERLANDS GEOGRAPHICAL STUDIES, P.O. Box 80132, 3508 TC Utrecht, The Netherlands (FAX +31 30 253 5523; e-mail KNAG@frw.ruu.nl). Prices include packing and postage by surface mail. Orders should be prepaid, with cheques made payable to Netherlands Geographical Studies. Please ensure that all banking charges are prepaid. Alternatively, American Express, Eurocard, Mastercard, BankAmericard, and VISA credit cards are accepted (please specify card number, name as it appears on the card, and expiration date with your signed order).

from THE MAMMOTH SITE



Mr. Joe Muller of The Mammoth Site, Hot Springs, South Dakota, USA, has asked that the following list of publications be brought to the attention of readers of PALYNOS. For those who are not familiar with this remarkable fossil site, it contains the remains many mammoths who foundered, drowned, and were buried in a sink hole on the southern edge of the Black Hills, in western South Dakota. Visitors to the northern Rocky Mountains or High Plains of the United States would be

well advised to visit this site. It is unquestionably one of the most remarkable fossil locations in the world. While we palynologists may not work directly with mammoths, the paleoecological and paleoclimatic content of some of the publications available from The Mammoth Site may indeed be of interest.

MB1. Mol, Agenbroad, and Mead. 1993. Mammoths. This is a brief introduction and overview of mammoths in the Northern Hemisphere. US \$5.95.

MB2. Nelson. 1997. Mammoth Graveyard. This book presents information about the Mammoth Site itself. 18 p., US \$5.95

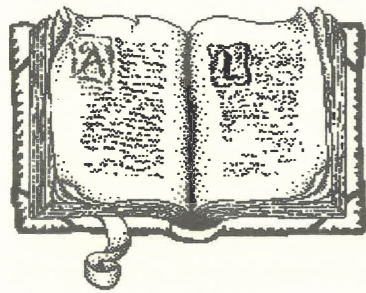
MB4. Agenbroad and Barton. 1991. North American Mammoths, an Annotated Bibliography 1940-1990. This book contains more than 450 published references to New World mammoths. 118 p., US \$9.95.

MB5. Ukraintseva. 1993. Vegetation Cover and Environment of the "Mammoth Epoch" in Siberia. See review later in this issue of PALYNOS. 309 p., US \$19.95.

MB6. edited by Steadman and Mead. 1994. Late Quaternary Environments and Deep History (a Tribute to Paul S. Martin). This publication contains transcripts of presentations made at a 1993 symposium held in honor of Paul Martin. 192 p., US \$15.00.

MB8. SOBOLIK. 1996. Turtle Atlas to Facilitate Archaeological Identifications. This is the first atlas ever published illustrating identification of archaeological turtle remains. The atlas is complete for all genera of North American turtles and discusses methods of identifying the carapace and plastron in addition to cranial and postcranial remains. Habitat descriptions, taxonomic classifications, and geographic range maps are included. 126 p., US \$ 19.95.

For information concerning these publications, as well as other educational materials available from The Mammoth Site, including a CD-ROM entitled Ice Age Adventures: A Mammoth Mystery, contact Mr. Joe Muller, The Mammoth Site, P.O. Box 692, Hot Springs, South Dakota, USA, 57747-0692, e-mail [mammoth@mammothsite.com](mailto:mammoth@mammothsite.com), or <http://www.mammothsite.com>



## BOOK REVIEWS

Atlas de polen de plantas útiles y cultivadas de la Amazonia Colombiana.

Pollen atlas of useful and cultivated plants in the Colombian Amazon region. L.F. Herrera and L.E.

Urrego. Tropenbos-Colombia and Fundacion Erigaie, Bogotá, Colombia, 1996, 462 pp. Spanish with short English summary. Published in the series "Estudios en la Amazonia Colombiana", Vol.

11 (and also as Vol. 23 in the reprint series "The Quaternary of Colombia"). ISBN 958-9365-03-5.

This book may be ordered at the following addresses: (1) Tropenbos-Colombia Office, Apartado Aéreo 036062, Avenida 22 No. 39-28, Bogotá D.E., Colombia: US \$ 35 including postage and handling (US \$ 30 at the office), or (2) Drs. J. dos Santos, Hugo de Vries Laboratory, Dept. of Palynology, University of Amsterdam, Kruislaan 318, 1098 SM Amsterdam, The Netherlands: US \$ 35 including postage and handling (cheques should be free of charge for the recipient).

The Quaternary vegetation history and biodiversity of the Amazon basin is poorly known and subject to considerable debate in the international literature. Debat to this situation is a.o. the difficulty to find sedimentary basins with undisturbed sequences of sediments, and the extremely rich flora which makes identification of fossil pollen grains and spores difficult, even to the few available specialists. This book presents a morphological study of the pollen grains and spores from 292 species of 211 genera, belonging to 85 families, of the useful and cultivated plants in the Colombian part of the Amazon basin. Most of the 997 light microscopic photos, arranged in 115 plates, are of good quality and generally printed at 1000 x magnification. It was inevitable that the authors had to make a selection: this was based on a list of plants used by indigenous communities. This criterion of selection relates to the background of the authors: Luisa Herrera is an archaeologist and palynologist and Ligia Urrego is a botanist and palynologist. Both received part of their

training from Prof. Thomas van der Hammen at the Hugo de Vries Laboratory in Amsterdam (now he is retired and lives permanently in Colombia where he continues to be a stimulating force for Colombian students attracted to paleoecological/palynological research).

This Spanish language book starts with a methodological section (pages 19-60) in which students are introduced to pollen morphology. This introduction is very welcome as almost no basic pollen morphological literature exists in the Spanish language: the books by Pla Dalmau (1961) and Saenz de Rivas (1978) are out of print and difficult to obtain in libraries. A key to the plant families is also presented. The second section (pages 61-164) includes morphological descriptions of pollen grains and spores of 292 species, collected from herbarium collections and in the field. Pollen morphological terminology is after Faegri and Iversen (1975). The third section (pages 165-279) includes microphotographs of the pollen grains and spores, numbered from 1 to 997 over 115 page-size plates. At the bottom of each plate taxonomic information is given. In section five (pages 281-428) the habitat, natural ecological ranges (type of environment and altitudinal range), and the economic use of a number of taxa is given. Many plants are used as food, medicine, tools, construction material and for cultural ceremonies. Several studies have shown that more than 50% of the natural taxa are used by the indigenous people.

Information from many archaeological sources have been compiled with the objective to improve the interpretation of pollen diagrams from Holocene archaeological sites. This book ends with a glossary, a list of references, two taxonomic registers arranged alphabetically after family and after species, and a list of common Spanish names. All registers refer to page numbers and plate numbers, something which is very convenient for the user.

The text has been well prepared and only a few typographical errors have been noted. Lettering is oversized and in the descriptions many words could have been abbreviated without any loss of readability; in this way some 60 pages could have been saved and the book could have been a bit more handy to use.

Palynologists working in the neotropical lowlands still suffer from a poor pollen morphological documentation of the very rich flora: only a few pollen and spore atlases for the neotropical lowlands are available (see Hooghiemstra and van Geel, update 1997). The most important works are the pollen atlas of Barro Colorado Island, Panama, by Roubik and Moreno (1991), and the unpublished Ph.D. thesis of M.L. Absy (1979). It is

often thought that the high taxonomic diversity of the rain forest is poorly reflected in the pollen rain. But, recently, several detailed studies from the rain forests of tropical America and Africa suggest that a short list of registered pollen taxa may be in some cases a sign of inadequate pollen morphological knowledge, rather than a poor reflection of the rain forest taxa in the pollen rain. Palynologists from temperate regions are used to abundant presence of a limited number of pollen taxa. However, pollen diagrams from tropical rain forest sites are characterized by numerous taxa which occur only with very low frequency. Such a situation easily results in discarding rare pollen types during routine analysis. In this respect the vegetation inventory study in Colombia Amazonas by Duivenvoorden and Lips (1995) is interesting. They showed that small families often are more characteristic of specific environmental conditions than the large families. This type of information should lead pollen morphologists in choosing their material for future studies. So, for many reasons this pollen and spore atlas is very welcome for palynologists working in archaeological as well as in Quaternary studies in the entire Amazon basin. The soft-cover book has been well produced at a very moderate price. This book offers a wealth of information and should be present in the library of all palynological research groups working in the tropics, and preferably at close distance to the microscope during routine analysis.

### References:

- Absy, M.L., 1979. A palynological study of Holocene sediments in the Amazon basin. Ph.D. thesis, University of Amsterdam: 86 pages + 8 plates.
- Duivenvoorden, J.F. and Lips, J.M., 1995. A land-ecological study of soils, vegetation, and plant diversity in Colombian Amazonia. Tropenbos Series, Vol. 12: 428 pp. Backhuys Publishers, Leiden, The Netherlands.
- Faegri, K. and Iversen, J., 1975. Textbook of pollen analysis. Munksgaard, Copenhagen: 237 pp.
- Hooghiemstra, H. and van Geel, B., update 1997. World list of pollen and spore atlases. Report Hugo de Vries Laboratory (to be published soon as AASP Special Report)
- Roubik, D.W. and Moreno, J.E., 1991. Pollen and Spores of Barro Colorado Island. Monographs in Systematic Botany, Vol. 36, Missouri Botanical Garden: 270 pp.
- Pla Dalmau, J.M., 1961. Polen. Gerona, Madrid.
- Saenz de Rivas, C., 1978. Polen y esporas. Introducción a la palinología y vocabulario palinológico. H. Blume Ediciones, Madrid: 219 pp.

Reviewed by:

Henry Hooghiemstra  
Hugo de Vries laboratory  
Dept. of palynology  
University of Amsterdam  
Amsterdam, The Netherlands

Vegetation Cover and Environment of the "Mammoth Epoch" in Siberia. Valentina V. Ukraintseva, edited by Larry Agenbroad, Jim Mead, and Richard Hevly. 1993. The Mammoth Site of Hot Springs, South Dakota, Inc. 309 p., 20 plates, ISBN 0-9624750-3-3. See information presented earlier for ordering information.

This book contains a remarkable compilation of information derived from the paleobotanical and palynological investigation of Pleistocene megafaunal burial sites in Siberia. The book is divided into chapters which deal with 1) the history of the investigation, 2) materials and methods, 3) the living conditions of animals buried at seven sites, 4) the diets of the fossil animals, 6) vegetation and landscape reconstructions, 7) a discussion as to the real causes for the extinction of mammoths, and 8) summary and conclusions. In spite of the reference to mammoths in the title, the frozen and mummified remains of *Bison priscus occidentalis* and *Equus lenensis* (the Chersky horse) as well as mammoths from five burial sites are discussed. The remains span Pleistocene time from nearly 53,000 years to approximately 11,000 years ago. All the corpses investigated by the author consisted of animals that had died with portions of their last meals preserved within their gastrointestinal tracts. The stomach and intestinal contents were removed and investigated for pollen, spore, and macrofossil remains. Furthermore, the paleobotanical contents of surrounding strata were analyzed for comparison with the remains of the food the creatures had consumed. The botanical data derived from the fossil remains are compared with analyses of current plant community distributions in Siberia. The migrations of plants and animals during periods of climatic cooling and warming during the Pleistocene are discussed based upon comparisons of the contents of the gastrointestinal remains with what is known of the ecology of modern plant communities in Siberia. The whole premise lying behind Ukraintseva's investigation is appealing, namely that the bowels of grazing and browsing animals provide us with a view of the vegetation and climate the animals were associated with. Practitioners of black magic may try to divine the future from entrails, but Ukraintseva sees the past! We all look for a window on the past, no matter how old the

material is that we work with, and I think most paleoecologists would find this work fascinating. The author's command of botany is impressive, and her familiarity with the literature is similarly remarkable. Furthermore, she has clearly put forth a great deal of effort in trying to compile what must have been a very great body of data. She travelled long hours, and many kilometers over what looks like a demanding landscape (based upon the photographs). Through her reliance on previously published information she has been able to assemble data from a wide range of sources, including detailed analyses of many different kinds which add depth to the entire study. Table 6, for example, presents a mineralogical analysis of intestinal contents and enclosing deposits associated with the Kirgilyakh mammoth (23 minerals were identified). By contrast, Table 20 lists the floral remains of the gastrointestinal tracts of all the mammals discussed in the book; the list bears 198 taxa of macroscopic remains, pollen and spores consumed *in situ*, and foreign or transported pollen. The interesting conclusion that the mammoths seem to have died during periods of climatic warming (as deduced from the nature of the plants consumed at the last meal) shows how rugged those animals were. The sustained, numbing cold of the ancient Siberian landscape apparently was to the liking of the mammoths, and they perished at the end of the Pleistocene when the global climate warmed beyond their ability to live with it. Professor Ukrainsteva is to be commended for her efforts in putting this book together. Judging from her communication with me, and based upon the observation that many of the maps were hand drafted, this book was put together largely on a shoestring, i.e., a very small budget. This was a project of her own design, and something for which she apparently got little support, except that The Mammoth Site took care of the publication process. According to the editors, "Never has there occurred, in a single volume, written in English, a discussion of all the complete data and the various conclusions regarding the frozen fauna and their associated plant communities." The editors go further to state that "We have edited the translation of Ukrainsteva's original Russian manuscript, but we felt that it was important to "leave the flavor" of the English as produced by the author." It is at this point in my review that I must depart from what is otherwise a fairly favorable evaluation of the book. The book suffers from a distinct lack of editing. I realize that translating things from Russian into English is difficult, particularly when idiomatic phrases are involved, and there is no clear path to translation. There are rather simple editorial tasks which could have been performed (albeit with a

considerable investment of time) that would have improved the book. Much of Chapter 6 is repetitive of earlier chapters, for example. I kept thinking "I've read this before." Map labels are sometimes wrong, or missing, and figure captions are incorrect in some cases. The use of italics is inconsistent, and there are numerous typographical errors. One which caught my eye, and which I hope even the most hardnosed editor might at least smile at is printed in the mineral list in Table 6; among the things consumed by the baby mammoth, affectionately known as Dima, was white mice, though this apparently should have read white mica. The photography in the plates is good, as is the resolution produced by the printer, but the identity of taxa in Plate 20 does not match what is illustrated. I don't think Professor Ukrainsteva will be surprised by my observations and criticisms. In spite of the book's short-comings, it is interesting to read and I give her a great deal of credit for assuming the task of compiling the large body of information that is represented. I also acknowledge The Mammoth Site for having supported the publication of the book; this was clearly an attempt to disseminate scientific information which formerly had resided only in Russian literature; frequent bibliographic citations from Nauka tell me that I would never have read or understood the original papers because many of them were, understandably enough, written in Russian. All of that being said, it is now up to some robust editor to assume the task of cleaning up the text of this book so that a second edition might be released that will be easier to read and which will portray the scientific evidence clearly and concisely.

reviewed by:

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Editor, PALYNOS

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