

PALYNOS

Volume 22, No. 2 - December 1999

NEWSLETTER of the INTERNATIONAL FEDERATION of PALYNOLOGICAL SOCIETIES

UPDATE FOR INTERNATIONAL POLLEN CONGRESS

May 1, 20 Hotel Deadline

The Jingling Hotel in downtown Nanjing has been selected by the IPC organizing committee as the Convention Hotel for IPC 10. It is a luxurious five star hotel -- the best hotel in the city. There will be two rates to choose from. The congress group rate covers the standard room with two beds for US\$60/night for two persons (US\$30 for each), or US\$60/night if the room is occupied by only one person. These prices do not cover breakfast, and food is US\$20/day/person. Rooms at the congress group rate are limited. To receive the congress group rate, the hotel reservation must be confirmed by May 1, 2000, and the length of stay must be at least 6 days. If the stay is less than the 6 day reservation period, no refund for the unused days will be available. The second possible rate (the congress rate) is US\$80/night/person, it covers a standard room with two beds. This rate is for stays of less than 6 days OR for days before and after the meeting days of June 24-30, 2000.

Because the lease requires the Organizing Committee to pay deposits for congress rate rooms before May 1, 2000, there is a risk to the Organizing Committee if too few people attend the meeting. Therefore, groups of more than 10 people from one country may be able to apply for a rebate on the registration fee.

Depending on the size of the group, the rebate may be up to 25% of the registration fee. People from the developing countries and the former USSR, and Eastern European countries may also apply for rebate for the registration fee.

IPC LOGOS

Dr. Zhu Haicheng and the Organizing Committee for IPC 10 have come up with a great logo, which includes the pollen grain of *Metasequoia glyptostroboides*. The edifice at the lower foreground is Nanjing's famous Zhonghuamen gate, in the city's southern wall. The logo symbolizes the host city Nanjing, China's unique flora, and China's importance to the global fossil record. It is now my favorite IPC logo.

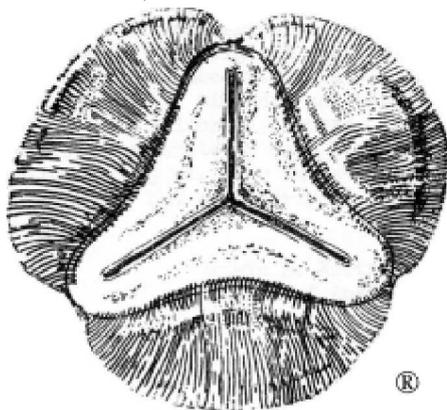


IPC 10 Logo - Nanjing

With Past President Jim Canright's help I have obtained images of the previous IPC logos, and

prepared this summary of their histories. Four of the first seven IPC logos are variations on the trilete theme.

The IPC 1 logo is a drawing by Robert Potonie of *Reinchozpora*. This drawing also graced the cover of the "Catalog of Fossil Spores and Pollen," and became its registered trademark. Gerhard Kremp (the Organizer of IPC 1) may have selected this drawing by his mentor because *Reinchozpora* was the first photomicrograph of a spore ever published -- in 1884 by Paulus F. Reinsch. It was later (1944) named by James Schopf in his honor (Traverse, 1988).



IPC 1 Logo - Tucson

The logo for the second (Utrecht) IPC was selected by F. P. Jonker. It includes a trilete spore over the sunburst of the University of Utrecht logo. This is a very fitting combination, given that institution's unparalleled longstanding support for palynological research. That loyalty appears to have been reciprocated, because it remains to this day on the logo of the Utrecht Laboratory of Palaeobotany and Palynology. You can see an animated version of the sunburst on their web page at <http://www.bio.uu.nl/~palaeo/glossary/glos-int.htm>

Elena Zaklinskaya selected the logo for IPC3. It features a diploxylon pine grain symbolic of the former USSR's vast boreal forests. The logo's shape and format are a stylish departure from the simpler and more symmetrical forms of most of the other logos. It reads (not surprisingly) International Palynological Conference (encircling), Novosibirsk (center).



IPC 3 Logo - Novosibirsk

The style of the logo for IPC 4 resembles that of IPC 3, but it is very "Mod" and "1970's" looking. It includes a trilete spore and echinate monocolpate grain, surrounded by psychedelic text. D.C. Bhardwaj selected it, but I'd like to know who the artist was, perhaps someone on the organizing committee? Hopefully, someone at the Birbal Sahni Institute remembers who the artist was, and will enlighten me.



IPC 4 Logo - Lucknow

The artist for the IPC 5 logo also is anonymous, but Jim Canright (1979) notes that it is a stylized *Appendicisporites* spore, known from the Albian through Maestrichtian, and symbolic of the extensive British Cretaceous sedimentary



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record (Latin *creta*, chalk, being the root for "Cretaceous"). Norman Hughes, a Cretaceous palynologist, chaired the IPC 5 organizing committee.



IPC 5 Logo - Cambridge

The IPC 6 logo includes a gear-cog-ornamented trilete spore (symbolic of Canada's industrial might ?) that is reminiscent of the logo Gerhard Kremp used on the cover of his Palynodata series. I imagine this is modeled after *Densosporites*, in keeping with Kremp's affinity for the late Paleozoic. The spore is floating (like the sun) above a "mountain range" symbolizing Calgary's proximity to the picturesque Canadian Rocky Mountains.



IPC 6 Logo - Calgary

The IPC 7 logo, "Is a stylized version of *Proteacidites pachypolis* Cookson & Pike. It was chosen by the PPAA and the Organizing Committee as a form identifiably Australasian in character and in recognition of Cookson's pioneering palynological

work. The dark central area represents the polar 'thickening(s)' characteristic of the species (Mary Dettman, 1985)."



IPC 7 Logo - Brisbane

IPC 8 was held just after the fall of the Berlin Wall and the end of the cold war. The olive branch is an appropriate symbol of the world peace that followed, and the olive pollen itself is suggestive of the vegetation and culture of the Mediterranean region where the congress was held. The Latin binomial reminds one of Linnaeus and the role of palynology in plant taxonomy.



IPC 8 Logo - Aix-en-Provence

The IPC 9 logo was the creation of Doug Nichols and a graphic artist at the Denver USGS office. The chenopod pollen grain (from Wodehouse) resembles a meteor-pocked asteroid, encircled by the NASA space shuttle. The latter is suggestive of the NASA Space Center at Houston, Texas, where the conference was held.

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IPC 9 Logo - Houston

That brings me back to the logo for IPC 10. Like the better-known *Ginkgo biloba* (which is being used as a logo by The Paleobotanical Congress for its Chinese meeting), the dawn redwood (*Metasequoia glyptostroboides*) is a "living fossil" whose foliage is common in late-Cretaceous through Pleistocene sediments of the Northern Hemisphere, particularly in the early-Tertiary of the Arctic. However, in the early 20th century, its entire population consisted of just a few thousand trees in the Sichuan, Hubei, and Hunan provinces of China. By 1948, seeds from a single grove along the Yangtze River had produced 15 seedlings in Europe and the USA. These populations are of very low genetic diversity, and are therefore of low fertility. Thanks to the recent cooperation of Chinese botanists, new genetic stock has been introduced to the USA and European populations. There is a much more romantic version of this history, involving enlightened monks and a single living tree, but it is laid to rest at <http://www.airnet.net/redwood/rwmeta.html>.

The pollen of *Metasequoia glyptostroboides* is similar to that of the other taxodiaceous grains (Taxodiaceae and Cupressaceae are combined in recent floras, even though their pollen is distinct). The grain is about 30 μm in diameter and somewhat thickened on the anti-papillate 2/3 of the grain.

Canright, James, 1979, 5th International Pollen Conference, Cambridge, 1980. PALYNOS 2 (2): 1.

Dettman, Mary , 1985, 7th International Palynological Conference Brisbane, Australia, 29 August - 2 September, 1988. PALYNOS 8 (2): 2.

Traverse, Alfred, 1988, Paleopalynology. Unwin Hyman, Boston. 6 p.

References to combining Taxodiaceae and Cupressaceae:

James E. Eckenwalder, 1976. Re-evaluation of Cupressaceae and Taxodiaceae: a proposed merger. Madroño 23:237-300.

Frank D. Watson and James E. Eckenwalder. 1993, 4: Cyperaceae Bartlet, Redwood or Cypress family. p 299-422, in: N. R. Morin (editor) Flora of North America North of Mexico. Oxford University Press, NY 3 vols.

(Maybe)
John Silba, 1981 Revised generic concepts of Cupressus L. (Cupressaceae), Phytologia 49: 390-399.

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MEETING PROCEEDINGS

Meeting report of the 32nd annual meeting of the American Association of Stratigraphic Palynologists, Savannah, Georgia, USA. October 26-30, 1999.

The annual meeting of AASP was hosted by Dr. Fredrick Rich, Department of Geology and Geography, Georgia Southern University, Statesboro, Georgia. Sixty-two members and spouses attended the meeting, which was held in the Coastal Georgia Center,

a conference facility located near downtown Savannah. Meeting activities began with a reception held in the Savannah History Museum on the evening of October 26. Technical sessions began on the morning of the 27th, and continued on the 28th and 29th. Thirty papers were accepted for oral presentation, and ranged widely in their content, illustrating them any directions that palynology has taken. Eleven poster presentations were also displayed in the lobby of the Center. General session papers included Paul Strother's description of the morphology and stratigraphic significance of Paleozoic cryptospores, as well as Gretchen Jones' analysis of the feeding behavior of Western Corn Rootworms. Two special sessions were held, including one on Short-term Palynological Records with Emphasis on Human Influences, hosted by Art Cohen, and a second session hosted by Joyce Lucas-Clark on the Cretaceous and Tertiary Palynology of the Atlantic and Gulf Coastal Plains, Southeastern United States. Following the Friday morning talks, a guest lecture was presented by Dr. Steven Emslie, University of North Carolina at Wilmington, on the paleontology of a Pliocene catastrophic death assemblage from Florida. The death assemblage consists largely of seabirds, and is believed to have been caused by red tides. Following Dr. Emslie's lecture, a group photograph was taken, and the annual business luncheon was held. President Chris Denison convened the business portion of the meeting, and various reports were made by officers in the organization. All reports show that AASP, and the AASP Foundation are in excellent financial condition and continue to offer publications and service at remarkably little cost to the members of the organization.

Several awards were also presented, including one made to Dr. Vaughn Bryant, Jr. (Texas A&M University) who was honored with the Distinguished Service Award. After a brief introduction by Dr. Len Eames, Dr. Aureal Cross (Michigan State University) was presented with the AASP Medal of Excellence in Education. The Best Student Paper Award was presented to

Coastal Wetland, Keweenaw Peninsula, Michigan". Mr. Booth co-authored his paper with Dr. Stephen Jackson. The Best Poster Award was presented to Dr. Daniel Michoux of TOTALFINA whose poster was entitled "Organic Sedimentation in the Early Cretaceous of the Austral Basin (Tierra Del Fuego, Argentina)". Dr. Michoux's co-authors were Samuel Piriou and Rene Braun. The Best Student Poster Award was shared by Jennifer Hopkins and Sarah Tiffin, both students at Brock University in St. Catharines, Ontario. Following the presentation of the awards, President Denison introduced Dr. Fred Rich, President-Elect of AASP, who was given the ceremonial gavel and copy of Roberts Rules of Order. President Rich offered a brief address to the group, and concluded by reminding participants of a Friday afternoon field trip to the Savannah and Ogeechee Canal. While the Board of Directors held their first meeting under Rich's leadership, 30 participants went for a tour of the canal, a historic structure that served the transportation needs of Savannah for most of the 19th Century. On Saturday, 38 brave souls boarded a bus for a field trip to the Okefenokee Swamp National Wildlife Refuge. The trip was lead by Fred Rich, and included a bus ride along the coast, accompanied by a narrative designed to acquaint the participants with some of the natural and cultural history of the Georgia coast. After arriving at the swamp, participants were first introduced to the displays in the visitors' center, then climbed into boats for a trip down the Suwanee Canal and into Chesser Prairie. The Okefenokee Swamp is one of the largest largely intact freshwater ecosystems remaining in the continental United States. While the persistent winds, and easily fouled outboard motors gave the boat captains plenty to do, the passengers are reported to have had a very enjoyable time. Following the retreat from the swamp, and a long bus ride back to Savannah, participants were eager to spend one more night on the town!

Robert Booth, University of Wyoming, for his talk entitled "Impacts of Historical Logging and Fire on a Lake Superior

submitted by:

Fredrick J. Rich
Editor, PALYNOS

NOMENCLATRURAL NOTES

A Day or Two in St. Louis: Nomenclatural Fallout for Paleobotany and Palynology.

Another International Botanical Congress has come and gone and with it, as usual, an eventful nomenclatural session. All in all, we feel that paleobotany (including paleopalynology) was served well in St. Louis in August, and that the changes to the Code that came to pass will have a stabilizing and clarifying effect on paleobotanical nomenclature, rather than an obfuscating one.

Of the Big Ticket items, the concept of an overriding code ("BioCode") for all organisms was put on hold, although a committee will continue to take note of the ways in which the several existing codes could be harmonized. The dream of a new, universal code for the new millennium was a seductive one. But seduction is commonly on the path to dysfunction, so many of us were greatly relieved to see this project shelved. With regard to other big issues, no aspects of the Names in Current Use proposal passed, though discussions appear to continue. There is no current or planned paleobotanical activity on this front, anyway. Nor was anything passed relating to Registration: all proposals were withdrawn, but the issue will probably reappear in the future. For now, all mention of Registration in the Code will be removed.

On the more specific items, the proposals of Fensome et al. (*Taxon*, v.47, p.489-490) were passed. These regarded clarification of the designation of types of the names of fossil plants. Thus (pending minor

After Article 8.4, another article will be added, as follows:

However, one of the specimens illustrated in the protologue must be chosen as lectotype. This choice will be superseded if it is later demonstrated that the author of the name clearly intended another specimen illustrated in the protologue to be the type.

In summary, if you come across a name for which a type is indicated by, for example, a specimen number, but no illustration is identified as being of the type, up to the end of 2000, the name is still validly published. After 2000, it is not. Any ambiguity, past, present or future, in this respect is thus removed.

With regard to the status of the "form-genus", two partly overlapping, but partly conflicting proposals had to be dealt with. To ease the potential conflict, a compromise proposal was worked out during the meeting by a consensus of the proponents of the original proposals (Chaloner, Greuter, Traverse and Nicolson; Fensome and Skog) and the members of the fossil plant committee present (Archangelsky, Faegri, Jansonius, Skog and Traverse). One of the main points of contention was what to call the entity that is in effect a combination of the former organ- and form-genus concepts. In the original proposals, Fensome and Skog had preferred to retain the term "form-genus" (or perhaps "form-taxa"), albeit with a modified definition. Chaloner et al. had suggested "parataxa", but this term is already in use for an evolutionary concept. As a compromise, the term "morphotaxa"

modifications by the Editorial Committee), Article 8.4 will now read:

The type of the name of a taxon of fossil plants of the rank of species or below is the specimen whose figure is, as of 1 January 2001, identified as being of the type and either accompanies or is cited in the valid publication of the name [New changes are underlined.]

was accepted as a simple and appropriate alternative by all.

The terminological question thus settled, the main part of the compromise proposal was to add a new paragraph to Article 11 (on priority), with two examples:

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Fossil taxa may be treated as morphotaxa which for nomenclatural purposes comprise only those parts, life-history stages or preservational states represented by the corresponding nomenclatural types. Names for morphotaxa, for purposes of priority, compete only with names based on a fossil type representing that same part, life-history stage, or preservation state.

Ex. 1. The genus *Sigillaria* Brongn. 1822, established for bark fragments, may in part represent the same biological taxon as the cone-genus *Mazocarpon* M.J. Benson 1918, which represents permineralizations, or *Sigillariostrobus* (Schimp.) Geinitz 1873, which represents compressions. Certain species of the genera (*Sigillaria*, *Mazocarpon*, *Sigillariostrobus*) can all be assigned to the family Sigillariaceae. Some species of these genera may be associated with the root-genus *Stigmaria* Brongn. 1822 and the leaf-genus *Cyperites* Lindl. & Hutton 1832; other species of *Stigmaria* or *Cyperites* may be assignable to the families Lepidodendraceae and Bothrodendraceae. All these generic names can be considered correct in spite of the fact that they may, at least in part, apply to the same organism.

Thus, older names based on fossils, like *Tasmanites Spiniferites*, can no longer have nomenclatural priority over modern, more recently named, counterparts like *Pachysphaera* and *Gonyaulax*.

The proposals of Traverse concerning illustrations as types of microfossils were withdrawn. However, a problem in this area is still perceived by some taxonomists, and this issue will be addressed within the committee between now and the Vienna IBC in 2005.

The following names are now conserved:
1) *Cyclopteris* Brongniart (fossil plants) against *Cyclopteris* Schrad. ex Gray (non-fossil *Pteridophyta*) (proposed by Cleal & Shute in *Taxon* 47: 448-450.1998).

2) *Neuropteris* (Brongn.) Sternb. (fossil plants) with a conserved spelling and ultimate type (proposed by Laveine in *Taxon* 47: 451-452.1998).

3) *Rhaetogonyaulacaceae* G. Norris (fossil *Dinophyceae*) against *Shublikodiniaceae* V. D. Wiggins (proposed by Fensome & al. in *Taxon* 47: 731-732.1998).

Although not under the aegis of the Committee for Fossil Plants, many palynologists will be interested to know that the dinoflagellate family name *Protoperidiniaceae* has been conserved against the names *Congruentidiaceae*,

Ex.2. The fossil cysts known under the generic name *Tuberculodinium* D. Wall 1967 may be retained under this morphogeneric name even though modern cysts of this type are known to be part of the life cycle of the extant genus *Pyrophacus* F. Stein 1883, which is the senior name if the two are considered taxonomically synonymous.

As part of this proposal, Article 3.3 is deleted, so that morphotaxa can be assigned to families, in contrast to the former situation for form-genera (in the legal sense).

Another aspect of Article 11 was modified - Article 11.7 will be modified to read "Names of botanical taxa (Bacillariophyceae excepted) based on a non-fossil type are treated as having priority over names of the same rank based on a fossil (or subfossil) type. (Bacillariophyceae are diatoms.)

Diplopsalaceae and Kolkwitzellaceae.

The list of members on the current Committee for Fossil Plants will appear in a forthcoming issue of this newsletter. The present authors agreed to serve again as Chair and Secretary respectively, and we welcome your comments and questions on nomenclatural matters.

submitted by:

Rob Fensome (fensome@agc.bio.ns.ca)
and Judy Skog (jskog@gmu.edu).

Additional Nomenclatural Note by Rob Fensome:

The above write-up reports on what are important advances in making the International Code of Botanical Nomenclature more responsive to paleobotanical needs. This success results from the work of many people, and in recognition of this I would like to thank the members of the Committee for Fossil Plants who responded promptly and constructively to the ballots leading up to the St. Louis meeting. I'd also like to thank those members of the Committee for Fossil Plants who put in long hours, notably to forge the compromise on the form-genus issue: Sergio Archangelsky, Knut Faegri, Jan Jansonius and Al Traverse. Last, but by no means least, I'd like to thank Judy Skog for her hard work in compiling and reviewing the ballots, her communication skills at

micrographs was collected from vouchered plant specimens, acetolyzed, and stained. The micrographs are grouped by aperture and family. More tricolporate types are shown than any other type. Both anemophilous and entomophilous taxa are represented. Aperture, family, and scientific name are printed above the micrographs. Most of the micrographs are from plants that occur in the southeastern United States of America; however, some are common to Mexico. Micrographs from commonly, and uncommonly occurring taxa can be found in the poster including (common) *Pinus palustris* and *Magnolia virginiana*; and (uncommon) *Pithecellobium calostachys* and *Berchemia scandens*. The idea of the poster is to give technicians and students a starting place for pollen identification, rather than to be the ultimate identification tool. The poster is 3' X 5' (about 91 X 152 cm) and costs \$25

presenting the paleobotanical point of view and, generally, her dedication to the cause.

PUBLICATIONS AVAILABLE

As of September 1, 1997 the Geological Survey of the Netherlands became part of the Dutch TNO-organisation and is now known as the 'Netherlands Institute of Applied Geoscience-National Geological Survey'. Subsequently the well-known Haarlem office moved to Utrecht in June 1999 and a major reduction of the famous Heerlen library collection took place. At both occasions many off-prints and a number of palynology volumes of the Mededelingen RGD were saved.

These are available, free of charge, upon request. If you are interested in obtaining a list of titles, please contact Dr. G.F.W. Herngreen, NITG-TNO, P.O. Box 80015, 3508 TA Utrecht, fax +-30-2564505 or e-mail g.herngreen@nitg.tno.nl

Pollen Poster

The American Association of Stratigraphic Palynologists is selling a pollen poster that was developed by the pollen laboratory at USDA-ARS, Areawide Pest Management Research Unit (APMRU), College Station, TX. This pollen poster is a compilation of 222 black and white micrographs from 117 plant taxa. The light micrographs were made using bright field microscopy. Pollen for the

(USA dollars). Purchase price includes postage and a mailing tube. MasterCard and Visa are accepted.

To order a poster, contact:
Vaughn M. Bryant, Jr.
Professor and Director
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Department of Anthropology
Texas A&M University
College Station, Texas, 77840-4352 USA
Telephone: 409-845-5242
FAX: 409-845-4070

Several other publications are now available from AASP. The Pliocene: Time of Change is a new text edited by John H. Wrenn, Jean-Pierre Suc, and Suzanne A.G. Leroy. AASP held its 26th Annual Meeting on October 23-29, 1993, at the Louisiana State University. During that meeting, a symposium entitled Palynology, Climate, and Sequence Stratigraphy of the Pliocene was organized to bring together researchers from around the world who are studying the geological record of the Pliocene. This book is a collection of manuscripts that represent the content of that symposium. A quick first read indicates that this is an excellent resource, and we hope to have a review published in the June issue of PALYNOS. Copies of The Pliocene: Time of Change are available for US\$35, and can be purchased from Vaughn Bryant at the address listed on this page.

Two new additions to the AASP Contribution Series have been published. Number 35, entitled Distribution of Recent Dinoflagellate Cysts in Surface Sediments from the North Atlantic Ocean and Adjacent Seas in Relation to Sea-surface Parameters was written by Andre Rochon, Anne de Vernal, Jean-Louis Turon, Jens Matthiessen, and Martin J. Head. It is a 150 page text

American plant formations through late Cretaceous and Cenozoic time

3. Context
4. Methods, principles, strengths, and limitations
5. Late Cretaceous through Early Eocene North American vegetational history
6. Middle Eocene through Early

with 14 photographic plates, numerous text-figures and tables, and is hidden wire-O hardbound. It is available for US\$22.00.

Contribution Series 36, Jurassic and Lowermost Cretaceous Dinoflagellate Cyst Biostratigraphy of the Russian Platform and Northern Siberian Platform has been written by James G. Riding, Valentina A Fedorova, and Vera I. Ilyina. It consists of 180 pages, with 35 photographic plates, numerous text-figures and tables, and is also hidden wire-O hardbound. It is available for US\$24.00. Both of these Contribution Series publications may be purchased from Vaughn Bryant at the address given on page 8.

ANOTHER NEW BOOK!

Late Cretaceous and Cenozoic History of North American Vegetation (North of Mexico), written by Alan Graham, Kent State University, 1998, 384 p, 171 illus., ISBN 0-19-0511342-X, Oxford University Press, 198 Madison Ave., New York, NY 10016.

This book is a unique and integrated account of the history of North American vegetation and paleoenvironments over the past 70 million years. It includes discussions of the modern plant communities, causal factors for environmental change, biotic response, and methodologies. The history reveals a North American vegetation that is vast, immensely complex, and dynamic.

Contents:

1. Setting the goal - the modern vegetation of North America
2. Cause and effect - factors influencing the composition and distribution of North

- Miocene North American vegetational history
- 7. Middle Miocene through Pliocene North American vegetational history
- 8. Quaternary North American vegetational history
- 9. The origins of North American biogeographic affinities

submitted by:

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NOTICE FROM THE PALAEOBOTANICAL SOCIETY

H.P. Gupta, Secretary of The Palaeobotanical Society, Lucknow, has asked that the following notice be published in this issue of PALYNOS. Be it KNOWN TO ONE AND ALL that the Probate applied by Dr. Shyam Chandra Srivastava, Secretary-Cum-Trustee of Birbal Savitri Sahni Foundation, 686, Birbal Sahni Marg, New Civil Lines, Trans Gomti, Lucknow has been dismissed by the Honorable court and the alleged WILL dated 09.10.1984, creating the said Foundation has been declared an forged document. If any one deals with the said Foundation, he will do so at his own risk.

submitted by:

H. R. Gupta
Secretary, The Palaeobotanical Society
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BOOK REVIEWS

The Origins of Agriculture in the Lowland Neotropics, 1998, Dolores R. Piperno and Deborah M. Pearsall. Academic Press, 416 p., illus. (B&W and color), tables, biblio, index, ISBN: 0-12-557180-1(Cloth), US\$99.00.

When I was an undergraduate student during the early 1960s, I learned that the domestication of many New World cultivars and the beginning of New World agriculture occurred in the highlands of Central and South America and not in the regions. The thinking at that time was that agriculture must have begun in the highlands of the New World because tropical forests had soils with poor fertility, had low human population densities, and native peoples living in those forested regions today were mostly foragers. Nevertheless, as students we were told that there were some scientists who did not agree with this hypothesis. Most notable among "rebels" was Carl Sauer (Sauer, 1952) who argued that there is a single origin of agriculture in Southeast Asia and that it has been in the lowland tropical and forested regions of that area. Sauer expanded his views to include the New World and argued that there had been a similar origin of agriculture and it undoubtedly occurred in the lowland tropics, or Neotropics as they were called. What was lacking in Sauer's argument, and generally missing throughout much of the 1960s and 1970s, was hard evidence to support such an assumption. Most archaeologists during those early years were searching for the remains of ancient cultures in the drier, easier-to-reach regions of Central and South America, not in the hot and steamy jungles. Those who might have believed in Sauer's hypothesis were discouraged because they were told that the

therefore, why even look? After all, hadn't Richard Mac Neish and his colleagues already resolved the whole issue as to the origin of New World agriculture with their extensive work in the dry Tehuacan region of central Mexico? Hadn't Mac Neish then begun excavations in the highlands of Peru during the early 1970s and didn't he report that he had found the origins of South American agriculture there?

Has anything changed from those early views that were so popular during the 1960s and 1970s? Actually, quite a bit has changed. Several decades ago most early anthropologists thought that agriculture couldn't have originated in the heart of the Brazilian Amazonian region, thus it must have also been impossible in all the other Neotropical forested regions as well. Today, most scientists would agree that the Brazilian Amazon had little to do with the origins of cultivars or agriculture in the New World, but many now realize that not all Neotropical areas are identical to the interior of the Brazilian Amazon. There is now a growing awareness that there is a great variety in the plant composition and rainfall patterns found in different Neotropical regions of the New World. Another reason paleoethnobotanical research in the Neotropical regions was delayed until fairly recently can be traced to early failures to recover fossil pollen from tropical forest soils during the 1950s and 1960s. Some of the earliest attempts ended in failure and further attempts to search for fossil pollen were delayed because of the extensive study conducted by the prominent British palynologist George W. Dimbleby. During the 1950s, Dimbleby's research (Dimbleby 1957) showed that tropical forests' soils were among the worst places on the planet to search for preserved fossil pollen and that further searches would undoubtedly be a waste of time and money. Likewise, archaeologists and other paleoethnobotanists who believed that tuber-like plants may have been some of the earliest cultivars in the New World often failed to search regions of the lowland tropics because they agreed that it

rapid decay and oxidation of organic materials in tropical forest soils would erase whatever plant evidence might have been deposited;

was reasonable to assume that rapid rates of organic decay in tropical soils would destroy all traces of whatever evidence might have been present.

During the last two decades (1980s and 1990s) the discovery of new and sophisticated recovery techniques, improved laboratory analysis techniques, and new approaches to the search for agricultural origins in the disciplines of archaeology, botany, and geology have revealed that many of the earlier assumptions about the Neotropics were wrong. New recovery techniques and refinement of phytolith (plant crystals) classification systems have shown that these microscopic silicate materials are diagnostic for many plant taxa and that they remain preserved in many Neotropical soils even in regions where high oxidation rates have destroyed all other traces of organic remains. Likewise, recent studies of how and why fossil pollen is destroyed in some sediments, but not others, have encouraged palynologists to return to the Neotropics and begin new searches for fossil pollen records of early horticulture and changes in forest composition created by human actions. The new data resulting from research in both of these disciplines have been very encouraging and together reveal that fossil pollen and fossil phytoliths are proving to be key elements in the overall reassessment about the origins of agriculture in the New World.

In Piperno and Pearsall's new book the authors have gathered an extensive amount of data pertaining to early horticulture and agriculture in the New World. They have drawn heavily upon the disciplines of anthropology, botany, and geology in an effort to provide a strong and convincing theoretical framework to support their views that plant domestication in the New World can trace its origin to the forested lowland regions of the Neotropics. Their book is filled with convincing arguments and data to

Second, the authors note and document that the lowland tropical regions of the New World underwent profound climatic and vegetational changes after the end of the Wisconsin Glacial Period and during the onset of the Holocene around 10,000 years ago. They also state that the impact of these changes in the lowland Neotropics was as significant as the changes that have previously been documented for regions at higher elevations in the Western Hemisphere. Third, Piperno and Pearsall present convincing evidence that documents how cultural groups living in regions of the lowland tropics in Panama, Peru, Ecuador, and Colombia were cultivating plants in small "garden plot" areas near their residential quarters by 10,000 years ago. The authors also mention that by at least 9,000-8,000 years ago changes in the seed morphology and phytolith size of certain plant taxa indicate that those changes resulted from systematic cultivation and plant selection by early farmers. They further note that by 7,000 years ago cultivation in the lowland tropics had become so important that cultural groups expanded their planting areas beyond the earlier small garden plots to include larger areas of the nearby forests. Those areas were being cleared using early slash-and-burn techniques which opened up the forest canopy and permitted sunlight to reach the crops below. By that time period the authors also believe the initial ideas and techniques of early cultivation were being exported from the lowland Neotropics into nearby drier regions at higher elevations.

The two authors are both noted scholars with distinguished research careers in the Neotropics. In the preface of their book

support their primary views, which can be condensed into the following main points. First, they believe and defend their idea that food production in the lowland regions of the Neotropics began at nearly the same time as it did in the Middle East, approximately 10,000 years ago. Their hypothesis pushes the origins of agriculture in the New World back several thousand years earlier than what current textbooks state, and it also documents that lowland regions of cultivation predate the existing evidence of early agriculture in the highland regions of Mexico and Peru.

the authors say that they wrote the book because of their "career-long fascination with and research into the topic." Later, they say that for them, the "tropical forests have always had an aura of mystery about them." These are both good reasons to write the book and I can't think of two individuals who are more qualified to write a book on the subject of agricultural origins in the New World or discuss the research that has been done or is still ongoing in the Neotropics. Dr. Piperno has spent most of her professional career in Panama, where she has devoted many years to the search for, and work at, sites associated with early

evidence of human occupation and cultivation. Dr. Pearsall likewise has spent much of her career working in areas of the lowland tropics of South America. Together, they have produced a good document full of facts and references. I found it difficult not to be persuaded to their point of view after reading and examining the wealth of evidence they have documented. I suspect you also will find it difficult not to be convinced by the evidence they have presented.

The cost of the book, at nearly US\$1 is high. However, it seems that almost every research-oriented book these days is expensive. Compared to the cost of other research books I have recently purchased, and compared to the amount of information and data that these authors have assembled in their book, frankly, the cost is a bargain. I highly recommend the book to each of you. If you are one of those who still believes that the Neotropics could not have produced the earliest cultivars nor been the cradle of cultivation in the New World, then you need to read this book. On the other hand, if you are one who already believes the Neotropics is the home of New World plant domestication, you still need to read the book so that you can see how well your

[A Short History of Planet Earth](#), 1996, by J. D. Macdougall, John Wiley and Sons, Inc., New York, 266 p., ISBN 0-471-199703-3 (paper), ISBN 0-471-14805-9 (cloth), paperback edition US\$16.95.

This is a great little book. It arrived in my mail a year ago, and I failed to read it as promptly as I now wish I had. The cover bears a statement from *Publishers Weekly* claiming that the book is a splendid introduction for the lay reader. I would modify that to read ...for anyone . I consider myself to be a seasoned professional geologist by now, having taught physical and historical geology for nearly twenty years. Still, I found this book to be very engaging. I actually substituted it for the fiction that I oftentimes read in the evenings because [A Short History of Planet Earth](#) reads like something new and fresh. It will certainly appear on my adoption list, particularly for courses that we teach for earth science teachers.

The book's attractiveness comes from Macdougall's ability to write as though he were speaking to the reader. This conversational style leads one to the inevitable conclusion that 'This is really

view is documented.

If you are a serious researcher and are interested in the origins of agriculture in the New World, then this text should become part of your reference library.

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pretty neat stuff!". The content covers the whole spectrum of Earth's history and is styled after such historical geology texts as Wicander and Monroe's Historical Geology or Dott and Prothero's Evolution of the Earth. Macdougall actually borrows an illustration or two from the latter, but he carefully avoids mimicking it. There is a review of the history of geological thought (Chapter 1, Reading the Rocks), and then a sequence of chapters that treat everything from Precambrian history (Chapter 2, Early Days) to a philosophical discussion of what is likely to happen on Earth now that humans and the Great Ice Age have had their opportunities to shape its surface (Chapter 13, What Comes Next? Geology and Man). The author even nods in the direction of palynology on a couple of occasions, and gives fossil pollen and spores recognition as significant tools in understanding the K-T extinctions and Pleistocene climate changes. Three chapters seemed to me to be especially good. Chapter 2, Early Days, provides an unusually clear discussion of radiometric dating, and, particularly, the significance of

zircons in determining the age and location of the first fragments of continental crust. I wonder at these refractory little white grains whenever I see them in concentrations of Georgia's beaches. They have many stories to tell, and are too often overlooked by geologists. In Chapter 3, Wonderful Life, Macdougall seriously questions the validity of the Miller-Urey experiment, stating that "In a carbon dioxide-rich atmosphere, the Miller-Urey electrical discharge method for creating amino acids doesn't work." I don't know how many times I have faithfully taught my students that the famous amino acid experiment successfully models the early planet, but apparently I need to learn more about this. Finally, Chapter 9, From Pangea to (Almost) the Modern World: The Mesozoic Era, includes a very interesting

IN MEMORIAM

On January 4, 1999 the science of palynology suffered a great loss in the death of Vladimir Polikarpovich Grichuk. Research performed by Professor Grichuk not only enabled the solution of major problems in palynology, paleogeography, and Quaternary geology, but also greatly influenced research in the fields of botany, paleoclimatology, and other areas.

V.P. Grichuk started his palynological research in the late 1930s, when he was transferred from the Moscow Geological Department to the Institute of Geography of the Academy of Sciences. Within the Institute V.P. Grichuk established the Laboratory of Pollen Analysis, which soon

and well-explained history of accretion in western North America during the Mesozoic, and a clear description of what geological signatures accompany rifting (salt beds, volcanic deposits, conglomerates, etc.)

I found only a few errors in this otherwise excellent book. In Chapter 9, for example, *Tyrannosaurus* is referred to as the Jurassic "king of the beasts;" doubtless even Macdougall has been adversely affected by the hyperbole associated with Jurassic Park. Macdougall won me as a disciple as I read Chapter 12, The Great Ice Age. There the author describes climate modeling and then observes that "Ultimately, information from the earth itself, the record in the rocks reflecting the actual climate changes that occurred, is the standard against which these theoretical treatments must be judged" Models are only models; they are not truth. The only true history lies within the Earth itself, and J.D. Macdougall does a mighty good job of describing it.

reviewed by:

Fredrick J. Rich
Editor, PALYNOS

became a leading scientific center in the field of palynology in the Soviet Union. Prof. Grichuk worked out the method for the separation of pollen from mineral sediments, which allowed for considerable broadening of application opportunities for pollen analysis. Since that time palynology has been widely introduced into the practice of geological exploration. At the same time, V.P. Grichuk conducted methodological studies of pollen assemblages of recent deposits in various vegetation zones.

Under the guidance of Vladimir Grichuk, and with his direct participation, studies of pollen morphology were conducted and research into floral Quaternary history were begun. World War II interrupted analytical investigations, but Grichuk was able to continue his research in 1945 after being demobilized from the Soviet Army. In 1948, in collaboration with E.D. Zaklinskaya, Prof. Grichuk published a manual entitled "Analysis of fossil pollen and spores and its application to paleogeography" in which, for the first time in Russian science, the methodological basis of pollen analysis and the broad possibilities of its application to solving theoretical and practical problems were fully considered. In 1950 Grichuk coauthored the volume Pollen Analysis, which was highly appreciated by specialists. At the same time, he conducted the training of specialists in Quaternary palynology on an extensive scale.

It would not be an overstatement to say that V.P. Grichuk advised virtually all palynologists from Russia, as well as some specialists from other countries.

Vladimir Grichuk regarded pollen analysis not as the final product of investigations, but rather as a tool which opens new perspectives in detecting the not-yet-known

discussion of its results. He also participated actively in palynological conferences and congresses both in Russia and elsewhere. Since 1955 he was a member of the Bureau of Commission on the Studies of the Quaternary Period. For 12 years (1957-1969) he was the Chairman of the INQUA Commission on the Pliocene/ Pleistocene boundary, and

regularities of natural development. As a consequence, he successfully created palynology-based reconstructions of vegetative cover for a number of interglacial and glacial epochs, and by means of estimating the heat and moisture supply of the environment, provided explanations for major landscape changes during the glacial-interglacial climatic macrocycles. His maps, which are reconstructions of global and regional vegetation, appeared in both Russian and international publications such as paleogeographical atlases, and monographs on the regions included in Europe, Northern Eurasia, and the Northern Hemisphere generally.

Another principal direction of paleogeographical studies that Grichuk developed was paleoclimatology. Using his methods of paleoclimatic reconstruction, it became possible to recreate quantitatively the spatial distributions of the main climatic indexes over large areas for various epochs of the Pleistocene. In recent years such reconstructions acquired particular significance in connection with the problem of human-induced global warming; some of the reconstructions are used as analogs for possible future situations.

The main features of the evolution of floras are used generally in the fundamental paleogeography and in studies of the Quaternary. Prof. Grichuk made a significant contribution to the development of stratigraphical applications of palynology, and formulated the principles for the detailed stratigraphic subdivision of Pleistocene deposits on the basis of paleobotanical data. He also worked out the system of correlation attributes for interglacial deposits, and suggested criteria for distinguishing between glacial and interglacial floras.

V.P. Grichuk participated enthusiastically in the field of geological work and in the

the Head of the Palynological Commission. V.P. Grichuk published over 2 research papers, and a short list of his major publications appears below that gives a general idea of the wide diversity of his scientific interests, and of the broad range of problems that were studied by him.

Vladimir Polikarpovich Grichuk, being a highly talented scientist, was at the same time a kindly and modest person, always benevolent to other people. His readiness to help everyone, not only by word of advice but also by concrete example won an affectionate memory among his followers and colleagues.

submitted by:

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CALL FOR NOMINATIONS

For the past eight years it has been my pleasure to serve IFPS as Secretary-Treasurer, then as President. It is my duty, now, to call for nominations for President of IFPS for the term 2000-2004. It is this individual's duty to chair the IFPS Council and General Assemblies, and to oversee the routine tasks of producing the IFPS Newsletter, Directory, and Web Page. To this end, the IFPS President selects and appoints the Newsletter Editor and Secretary-Treasurer. I urge you to nominate individuals who have the resources and the devotion to IFPS that are needed to complete this task. All current IFPS Councillors of Affiliate Societies in good standing (societies who have paid their dues) are eligible - provided that they agree in advance to stand for election. In addition, any member in good standing of an affiliate society can run for President, if he/she is nominated in writing by another member in good standing to the Secretary-Treasurer of IFPS two weeks in advance of the deadline for mailing the ballot to the IFPS Council. Therefore the due date for nominations for President of IFPS shall be FRIDAY, SEPTEMBER 24, 1999, and the ballots shall be mailed to the Council Members before FRIDAY, OCTOBER 15, 1999, in accordance with the IFPS Constitution. Furthermore, it is my pleasure to call for invitations for the location of IPC-11. Two IFPS societies have already expressed their interest in hosting IPC-11, in the year 2004. I urge the other affiliate societies to

Therefore, as proposed during the June 27, 1996 meeting of the IFPS Council, I post the following proposed amendment to the IFPS Constitution, to be voted upon by the IFPS Members present at the Plenary Session at the opening of IPC 10, Nanjing, China, June 24-30, 2000.

The amendment to Article 16 reads:

"Up to \$60 shall be made available to the organizing committee of the International Palynological Congress, upon their request, to assist with the expenses that may be incurred for organizing the Congress. The amount loaned shall be returned to the Secretary-Treasurer of the IFPS; and in addition, half of any profit accruing from the meeting shall be transmitted to the IFPS along with a detailed account of the financial status of the Congress".

It is to replace the last sentence of Article 16, which currently reads:

"Surplus funds remaining after the final settlement of financial affairs of each International Palynological Congress shall be sent in trust to the Secretary-Treasurer of the IFPS for transmittal, if needed, to the organizing committee for the next congress."

Both notices submitted by:
Owen K. Davis
President, IFPS

also consider this opportunity. Again, only Affiliate Societies in good standing are eligible to submit proposals. All invitations and proposals for the venue of the IPC-11, 2004, are due in the office of the President of IFPS before FRIDAY, MARCH 17, 2000.

PROPOSED CONSTITUTIONAL AMENDMENT

(third notification)

Article 17 of the IFPS Constitution states, "The Constitution may be amended only at a plenary session of the General Assembly. The text of any proposed amendment(s) shall be circulated to all members through the affiliated societies at least six months before the plenary session."

PALYNOS (ISSN 0256-1670) is published semiannually (June and December) and is distributed to all individual members of the scientific organizations affiliated with the International Federation of Palynological Societies (IFPS). News items, photos, member and society activities are welcome. (Scientific papers will not be published in PALYNOS.) Please forward materials for PALYNOS to the Editor:

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