



# PALYNOS

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NEWSLETTER OF THE INTERNATIONAL FEDERATION OF PALYNOLOGICAL SOCIETIES

## NEWS AND VIEWS

### Is there a decline in Palynology ?

If one is to judge by the activity of certain associations affiliated to IFPS, and the membership census for the next World Directory it would seem to be a real subject for concern.

During the years 1960-1980 Palynology underwent considerable and rapid expansion in the field of biology, as well as in the field of Earth Sciences. Palynologists were recognized as specialists, and Palynology was considered to be a subject in its own right.

We produced numerous theses and publications, discovering the diversity of pollen, their structure, their stratigraphic distribution, and many students came to our laboratories from all over the world to familiarize themselves with our discipline. The name of Palynology alone was sufficient to unite research or laboratories in the various institutions where it existed.

What then is it today ? Palynology has become a well-established research tool, still indispensable and integrating perfectly into immense projects, and multidisciplinary programmes. Because of this it seemed, of itself, to disappear. Systematic botanists, for example, were no longer content to simply study the morphology and ultrastructure of pollen, but introduced pollen characters in phylogenetic studies, where pollen rubbed shoulders with many other morphological characters and molecular data. This aspect was widely discussed by Madeline Harley, Michael Hesse and Siwert Nilsson in *Palynos* 24(2) 2001, where the importance of pollen morphology is

perfectly demonstrated. The interdisciplinary approach is no less important in palaeoenvironmental studies, in which pollen, for a long time, has served as the driving force. The history of vegetation and climate change allow for the introduction of new methods and techniques, using pollen data which can seem to be definitive.

All this evolution has led to an apparent decline in our discipline, to the closure of some laboratories, often prestigious in their field, to a reduction in the basic teaching of palynology and, therefore, of the students, and to the disappearance of some palynological journals. Seeing such outcomes, has led to a decline in the number of members affiliated to palynological associations, often to the gain of other associations that appear more attractive fields of research.

Yet, it seems to me that Palynology is now even more alive because it is necessary, if not indispensable, to the building and realization of numerous research projects. It is up to us to recognize that its defense is in our midst. In the networks to which we all belong, and in demonstrating the impact that palynology will always make, and the new research that it can engender and which can be further developed as, for example, in population genetics.

How to act within the scale of our Federation ? Although we are all united by the study of pollen, we work in sufficiently varied or different fields to sometimes be unaware of some of them. This can lead to a tendency, unwittingly, to underestimate their activity. Therefore I am suggesting to all of you that we begin a serious discussion in *PALYNOS*, where each group, association or other institution can clearly define their main priorities. Describing the themes that they are most successfully developing within the international

framework. Why not encourage colleagues who are working with pollen or related material, but who do not belong to a national palynological association, to get more involved with us. Perhaps they could even make a contribution to the next PALYNOS by way of introduction to their work.

Perhaps in this way we stand a better chance of understanding the many facets of this major discipline, and to be better equipped to estimate with greater precision, some of its strong points, and some of its weak points, as well as new developments. An inter-disciplinary discussion should be organized during 11 IPC in Granada (July, 2004). At the same time we should aim, as in previous IPC Congress years, to co-ordinate the next congress (12 IPC) with the next (8<sup>th</sup>) Palaeobotanical Conference, while taking account of the dates anticipated for the IOP congress, IUGS, INQUA, ICBPR and any other meetings in which the participation of palynologists is critical.

We are all overloaded with work, but we wait for the thoughts of all on this subject, individually or collectively. It cannot be over-emphasized that while I am sure we all believe Palynology is still a living discipline, we cannot afford to be complacent.

We look forward to preparing the next PALYNOS with enthusiasm (26/1 June, 2003).

Annick Le Thomas  
President of IFPS

## ANNOUNCEMENTS

### Review of Palaeobotany and Palynology

Dear colleagues,

Since several years I have been trying to persuade Elsevier to offer the Review of Palaeobotany and Palynology for a reduced subscription rate to IFPS members. Initially I had no success but a few years ago they offered the Review to IFPS members for US \$ 125.- per year. The major problem was that this offer applied only to those who were working in an institute already having a regular subscription. I am very pleased that Elsevier now has decided to offer the Review of Palaeobotany and Palynology for the sum of US \$ 90.- for one year to all IOP members, regardless whether their institutions have a library subscription or not. The only condition is that they are paying IOP members. Of course they do not like to see institutional library subscriptions

being cancelled, and personal copies being shelved in institutional libraries. Therefore, the condition that the subscription is exclusively for personal use still applies.

Anticipating that IFPS would be interested, I have given your addresses to Mrs. Femke Wallien, the managing editor of the Review and I assume that she will contact you soon.

The Society of Organic Petrology (TSOP) has a similar deal with Elsevier for the International Journal of Coal Geology and the Review of Palaeobotany and Palynology. On the invoice form for paying the annual fees their members can indicate if they would like to receive one of these or both journals. The secretary/treasurer then informs Elsevier and the rest is handled by them.

I know that colleagues working in smaller institutions often do not have access to the Review of Palaeobotany and Palynology, and that there will be people who would be very interested in a personal subscription. I hope that this offer is attractive enough. Although I am fully aware that Elsevier is a commercial enterprise, this deal might also be beneficial for IFPS.

With very best wishes,

Hans Kerp  
[<kerp@uni-muenster.de>](mailto:kerp@uni-muenster.de)

## FUTURE MEETINGS

### Holocene Catastrophic Events Recorded in Lakes

A special session of the 3<sup>rd</sup> Limnogeology Congress (ILIC3) to be held in Tucson, Arizona, USA, from 29<sup>th</sup> March to 2<sup>nd</sup> April, 2003. Organised by Daniel Ariztegui and Suzanne Leroy. Offers of papers invited. Information on registration, abstract submission, accomodation, field trips etc. can be found on the ILIC3 website at:

<http://w3.arizona.edu/~uaextend/ilic3/>

### APLF

The next symposium of the French Speaking Palynological Society will be held in September 2003 in Bordeaux, South-West France. It will be

organized by JL Turon and his staff. Please contact JL Turon for further information :

[turon@geocean.u-bordeaux.fr](mailto:turon@geocean.u-bordeaux.fr)

## MEETING PROCEEDINGS

### XIV APLE Symposium Salamanca, Spain, 25th- 27th september 2002

The XIV symposium of the Spanish Palynological Society was held from 25 to 27 September 2002 in the historic university city of Salamanca, which this year, together with Bruges, has been honoured with the title of European City of Culture. The meeting was organised to coincide with the XVIII Meeting of the Spanish Palaeontological Society, the II Iberian Conference on Palaeontology and the Interim-Colloquium of Regional Committees on Neogene Atlantic Stratigraphy.

100 participants attended the APLE symposium and in all 106 contributions were made:

32 in the Aeropalynology and Modelling, 19 in Pollen Biology, 14 in Melissopalynology, 9 in Pollen Morphology and Evolution and 32 in Palaeopalynology.

Four plenary lectures were given by:

J. de Porta Vernet: Principales eventos registrados en Colombia durante los últimos diez millones de años (The main events recorded in Columbia during the last ten million years)

D. Fernández Gonzalez: Organización y funciones de la Red Española de Aerobiología REA (The organisation and work of the Spanish Aerobiological Network REA)

C. Gómez Ferreras: Caracterización botánica y geográfica de las mieles españolas (The botanical and geographic characterization of Spanish honey)

R.H. Wagner: El bosque carbonífero de Verdeña [Palencia] (The Carboniferous forest at Verdeña [Palencia])

The general assembly of the Palynological Society was also held during the symposium during which the Board of Directors were re-elected to their posts. The Steering Committee was congratulated upon their excellent work since the last meeting with special praise directed at the symposium organising committee: M.F. Valle, J. Sánchez Sánchez and R. Rivas.

As part of the social programme organised for the participants we were privileged to be taken on a night-time guided tour of Salamanca by Professor E. García Zarza of the University of Salamanca, who showed us the city from a different perspective to that traditionally seen by visitors. The University and the City Council both offered receptions to the participants of all the symposiums. The participants were also able to take part in a part scientific-part pleasure excursion to las Lagunas de Villafáfila and Toro.

Finally, it was agreed to hold the XV APLE Symposium in 2006 at a venue to be decided at the General Assembly scheduled for the 11 IPC to be held in Granada in 2004

APLE Executive Committee:

President and IFPS councillor: Ana T. Romero (atromero@ugr.es)

Secretary: Koldo Nuñez Betelu

Treasurer: Delia Fernández González

Members: Rosario Rivas Carballo

Ramón Pérez Obiol

Consuelo Díaz de la Guardia

Report submitted by Ana T. Romero

### A joint meeting of APD, EPD, NAPD, LAPD and GPD, Casablanca, Morocco, 4th and 5th october 2002

**Pollen Databases:  
"Play it again...!"**



The latest scientific meeting of the African Pollen Database (APD) took place in Casablanca, Morocco on 4th and 5th of October 2002. The workshop brought together palynologists from Europe, North America and, of course, Africa to discuss their latest research results, this time under the theme: 'African palynology: late Quaternary-modern data'. The workshop series was established in 1994 to allow palynologists to participate in the development of a pollen database and to make decisions concerning its content, technical structure

(general agreements, protocols), location and organisation. The first workshop was held in Lund (Sweden) under the aegis of the "Biome 6000" project (global vegetation mapping at 6000 years BP) and marked the beginning of the international effort that will eventually result in the creation of a Global Pollen Database. Subsequently, the workshop was held in association with the 14th symposium of the Association of French Speaking Palynologists (APLF) "Palynology and Global Change" in Paris (1995) and was followed by a special workshop in Bierville (1996), where the African Pollen Data Base (APD) was formally constituted. Several workshops have since been organized for APD to prepare and organize the network, viz, in London (July 1998), in Aix-en-Provence, Toulouse and Paris (1998-1999), in Durban (August 1999), Nanjing (2000) and Nairobi (2001).

The workshop was structured around more than 20 presentations by scientists from more than a dozen countries. The first morning was given over to Africa, with papers by Aziz Ballouche (Morocco), Hilaire Elenga (Congo), K Rahmani (Morocco), Mike Meadows (South Africa), Henry Lamb (Wales), Stephen Rucina (Kenya), Jean-Pierre Cazet et al. (France), Therese Edorh (Togo), Adebisi Sowumni (Nigeria) and Rachid Cheddadi et al. (Morocco). Papers covered diverse topics but focused mainly on late Pleistocene and Holocene vegetation change, although several papers concerned themselves with modern pollen-vegetation relationships. Participants were in effect taken on a palaeoecological tour of the continent, with representation of most of Africa's biomes (Mediterranean, arid, savanna and tropical forest) and studies of environments ranging from the coast to the highest mountains. A richly rewarding morning indeed.

In the afternoon, the palynological pathway wandered around Europe. Again, the late Pleistocene and Holocene provided the focus for the papers by Elise van Campo et al. (France), Laura Sadori (Italy), Jacques-Louis de Beaulieu et al. (France) and Anne-Marie Lézine et al. (France). Other papers concentrated on contemporary climate-vegetation relationships (Jeanne-Marine Dubois, France), on statistical manipulations and mapping of large pollen data sets (Richard Bradshaw et al., Denmark) and of the latest developments in the area of pollen monitoring (Sheila Hicks, Finland). The final paper of the day was presented by Rob Marchant (The Netherlands) on pollen-based biome reconstructions for the continent of South America.

The second day provided delegates with an opportunity to hear about progress concerning the

various data bases that will eventually make up the Global Pollen Data Base. Anne-Marie Lézine and Hilaire Elenga (Congo) demonstrated progress with the APD in particular, which now has more than 175 Quaternary sites represented and a large component of modern pollen data (see <http://medias.obs-mip.fr:8000/apd/>). Rachid Cheddadi then discussed the European Pollen Database, housed in Arles, and the more than 1000 sites that this now contains. Eric Grimm, he of 'Tilia' fame, from the United States presented a view on the status of the North American Database and progress within the Global Pollen Database. The World Data Centre is home to the pollen data and the information can be extracted from: <http://www.ngdc.noaa.gov/paleo/pollen.html> Certainly there have been many successes in this venture. There are data from thousands of cores and surface samples, the data are available free of charge, the World Data Centre provides excellent infrastructural support that gives the archive credibility. The final formal paper of the meeting was presented by Hassan Makhmara and Michel Hoepffner on the role of Medias (<http://medias.obs-mip.fr>) in terms of information and database management.

The workshop then evolved into discussion mode and there was lively debate, most especially around the thorny issue of funding. The new European Sixth Framework may offer some opportunities in this regard. In terms of future directions, it was agreed that facilitating linkages between various databases should be a priority and that this would further the relevance of pollen data, especially as it relates to climate and other attributes of environmental change. The establishment of a strong network of palynologists contributing meaningfully to important global debates around climate change, land use change and sustainability was seen as an important potential spin-off and would take the GPD beyond the mere database function.

The meeting was an exciting opportunity for African palynologists to meet again and explore pressing scientific and administrative problems. The facilities at the designated Hotel Mercure les Almohades in Casablanca certainly made this task feasible. As usual, Michel Hoepffner, Danielle Barrere and Anne-Marie Lézine provided excellent administrative support for the meeting. This was my second opportunity to attend an APD workshop and, as was the case in the previous meeting in Nairobi, the atmosphere was a most pleasing mix of scientific scrutiny and relaxed and personable interaction.

Palynologists may spend much of their time peering into the microscope, but that appears to make them

anything but dull. As expected, under the expert guidance of Hilaire and Hassan, there were considerable social as well as scientific benefits to the workshop experience! "Vive l'APD!" and, if funding allows, Cape Town beckons in 2003.

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## BOOKS

### ➤ **Bibliografia Palinologica Italiana. Secondo aggiornamento (1992-2000) ed. Addenda.** *Allionia* 38, 7-79 (2001).

Rosanna Caramiello, Valeria Fossa, Daniele Arobba, Deborha Isocrono.  
Dipartimento di Biologia Vegetale – Università di Torino, Viale P.A. Mattioli 25, 10125 Torino, Italy  
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This bibliographical review is the 3<sup>rd</sup> contribution, and lists 1304 references on palynology. It refers to work carried out in the Italian area from 1992 to 2000, both by Italian and non-Italian scientists. A CD-ROM database has been prepared in English and in Italian, includes the entire Italian Palynological Bibliography from 1950 to 2000. It is also possible to search the database of the CD-ROM on, theInternet at :

[www.culturalheritage.cnr.it](http://www.culturalheritage.cnr.it) at :  
[patrimoniobeniculturali.it](http://patrimoniobeniculturali.it),

(prepared within Progetto Finalizzato Beni Culturali of C.N.R.)

### ➤ **Publications on Amazonia and the northern Andes**

Contributed by Prof. Henry Hooghiemstra, Institute of Biodiversity and Ecosystem Dynamics (IBED), University of Amsterdam, Kruislaan 318, 1098 SM Amsterdam, The Netherlands.

In the past two decades the Hugo de Vries-Laboratory published several 'Pollen Atlases' and ecological studies on the Amazon Basin and the northern Andes. Copies are still available of several publications. We are able to offer readers of

PALYNOS the following publications at special rates. Please order by e-mail only ([hooghiemstra@science.uva.nl](mailto:hooghiemstra@science.uva.nl)). Pay by sending cash (bank transfers are too expensive) to: Prof. Henry Hooghiemstra, Institute of Biodiversity and Ecosystem Dynamics (IBED), University of Amsterdam, Kruislaan 318, 1098 SM Amsterdam, The Netherlands. Please add US \$ 5 / euro 5 for postage.

### **Pollen atlas of Colombian Amazonia** price : US \$ 30 / euro 30

Herrera, L.F. & Urrego, L.E., 1996. Atlas de polen de plantas utiles y cultivadas de la Amazonia colombiana / Pollen atlas of useful and cultivated plants in the Colombian Amazon region. The Quaternary of Colombia, vol. 23, 462 pages.(with 115 plates).

### **Pollen atlas of Brazilian Amazonia** free; postage costs only

Absy, M.L., 1979. A palynological study of Holocene sediments in the Amazon basin. University of Amsterdam, 86 pages + 8 plates (original copies).

### **Spores of recent Colombian pteridophyta** free; postage costs only

Murillo, M.T. & Bless, M.J.M., 1978. Spores of recent Colombian pteridophyta. II. Monolet spores. Review of Palaeobotany and Palynology 25, 319-365 (original reprints including 19 plates).

### **Pollen/spore atlas of the Colombian montane forest and paramo**

price : US \$ 20 / euro 20

Hooghiemstra, H., 1984. Vegetational and climatic history of the high plain of Bogotá. *Dissertationes Botanicae*, vol. 79 / The Quaternary of Colombia, vol. 10: 368 pages (including 49 plates).

### **Soils, vegetation, and plant diversity in Colombian Amazonia**

price : US \$ 20 / euro 20

Duivenvoorden, J.F. & Lips, J.M., 1995. A land-ecological study of soils, vegetation, and plant diversity in Colombian Amazonia. *Tropenbos Series*, vol. 12, 438 pages. Wageningen, The Netherlands.

### **Atlas of Neogene macrofossils of northern Andean vegetation**

price : US \$ 30 / euro 30

Wijninga, V.M., 1996. Paleobotany and palynology of Neogene sediments from the high plain of Bogotá (Colombia). Evolution of the Andean flora

from a paleoecological perspective. The Quaternary of Colombia, vol. 21, 370 pages (including 69 plates)

### ➤ **Reviews of seven useful books on Hymenoptera, pollination, pollinators and their protection and use**

Contributed by Peter G. Kevan, Department of Environmental Biology, University of Guelph, Guelph, ON N1G 2W1.

The international Convention on Biological Diversity has stressed the importance of pollinators in agro-ecosystems, and in nature, as providing an essential ecosystem service. There is now international concern over the potential demise of pollinators and pollination services and what that may mean to human food and fibre security and prices, as well as to long-term effects in ecological communities through effects on plant reproduction. The concerns embrace managed and wild pollinators in ecosystems from tropical rainforests to urban gardens. The seven books noted below are noteworthy for their contents and the intended readership.

In 2000, the regional government of Tuscany published '**Apie impollinazione**', compiled by Mauro Pinzauti. This 307 page book is in Italian. It comprises 18 independently authored chapters. All are practical in approach. Chapters are devoted to concerns relating to pollination and fertilization of plants, with special reference to Tuscany. The roles of nectar and pollen in the entomological and botanical phases of pollination processes are discussed. As may be expected much of the book is entomological and addresses beekeeping with honeybees, bumblebees, leafcutting bees, including the genus *Heriades*, and orchard mason bees. The importance of other pollinators is also mentioned. The book is well-illustrated, with numerous colour photographs, graphs, and tables to highlight important points. The hand-painted cover design, of a germinating pollen grain with flying pollinators, and other pollen grains is especially attractive and evocative. The language is clear, the print is sharp and the paper of high quality. Mauro Pinzauti and the regional government of Tuscany are to be congratulated on an excellent and highly useful book for growers, beekeepers, the scientific community, and the public.

Pinzauti, M. (ed.) 2000. *Apie impollinazione*. Edizioni della Giunta Regionale: Region Toscana. Via di Novolini 73?a, 50127 Firenze, Italy.

Also in 2000, the German book "**Bienen, Hummeln, Wespen im Garten und in der Landschaft**" was published. Written in German by Helmut and Margrit Hintermeier, this 132 pp. book is about honeybees, bumblebees, solitary bees, wasps and hornets. It provides interestingly written accounts of the natural histories, nesting and foraging habits of these bees, and stresses their ecological importance. Pollination and predation are thoroughly discussed. Techniques for encouraging these insects are well-described, and include some practical beekeeping, trap nesting for solitary bees, and advice on how to house hornets. Printed on high quality paper, the text is clean and the illustrations exquisite. The book includes over 150 colour photographs, and wonderful reproductions of paintings of the insects and their nests. This book is written for the informed and curious naturalist, but professional entomologists and beekeepers can find much of interest.

Hintermeier, H and M. 2000. *Bienen, Hummeln, Wespen im Garten und in der Landschaft*. Obst- und Gartenverlag, Postfach 15 03 09, 80043 München, Germany. ISBN 3-8759-098-X

Institut National de la Recherche Agronomique published "**Hazards of Pesticides to Bees**" in 2001. It is the outcome of the 7<sup>th</sup> International Symposium of the International Commission on Plant-Bee Relations, Bee Protection Group held in Avignon, France in 1999. For anyone concerned with the subject, this book of 308 pp. contains 27 papers on the full range of relevant issues. 'Toxicity tests' and 'sub-lethal effects' are well covered, as are 'non pesticide approaches to pest control' as they may affect bees. There is a section of five papers on bumblebees and pesticides. Papers on 'metabolites', 'residues', and 'bee poisoning incidents' (from Europe). An interesting set of five papers concerns 'methodology' and introduces behavioural approaches to assessing pesticide hazards. The EPPO (European and Mediterranean Plant Protection Organization) Guidelines are presented as they concern 'side-effects on honey bees'. These are useful internationally as reference. The editors, L. Belzunces, C Pélissier, and G. Lewis. The publishers deserve our thanks for producing this helpful volume so quickly after the symposium ended.

L. P. Belzunces, C. Pélissier, G. B. Lewis. 2001. *Hazards of Pesticides to Bees*. INRA Editions, Les Colloques No. 98. Institut National de la Recherche Agronomique, 147, rue de l'Université, 75338 Paris Cedex 07. ISBN 2-7380-0966-2



Also directly related to agriculture and practical issues in pollination is the book **“How to Manage the Blue Orchard Bee as an Orchard Pollinator”** by Jordi Bosch and William Kemp of the USDA in Logan, Utah, published in 2001. This slender book, of 88 pages is well-written and thoroughly covers the subject area. The life cycle and foraging ecology of these bees, called BOBs, are described. Chapters are devoted to artificial nesting materials, rearing BOBs, how to deploy them as efficient and low-temperature pollinators in commercial orchards, and how to encourage and protect them from pesticides and pests. The book is well-illustrated with black and white, and colour photographs, line drawings, and explanatory graphs. The authors and the publishers can be proud of their accomplishment.

Bosch, J. and W. Kemp. 2001. *How to Manage the Blue Orchard Bee as an Orchard Pollinator*. Sustainable Agriculture Network, National Agriculture Library, Beltsville, MD 20705-2351. ISBN 1-888626-06-2. Order: [sabpubs@uvm.edu](mailto:sabpubs@uvm.edu).

**“The Natural History of Bumblebees: A Sourcebook for Investigators”** by Carol Kearns and James Thomson is a useful addition to the literature. Published in 2001, it has 130 pp. It provides insights into how to study these fascinating insects. The accounts of the life cycles, foraging behaviour, parasites and predators, importance for conservation, and how to raise bumblebees in the laboratory culminate with interesting suggestions for research projects that can be undertaken by students and curious naturalists. The references provided are quite extensive and allow users ready access to the scientific literature. The photographic field guide is not as useful as it might have been, but covers each species, as queens, in North America with face-on, oblique over the back, and lateral illustrations to assist in identification. The range maps provided with the photographs should be used with caution as they are, admittedly “very broad”. I think this book is highly useful. It should be on the shelf of every laboratory that is, or considers, working with bumblebees.

C A Kearns and J D Thomson. 2001: *The Natural History of Bumblebees: A Sourcebook for Investigators*. The University Press of Colorado, 5589 Arapahoe Avenue, Suite 206C, Boulder, CO 80303. ISBN 0-87081-621-7 (paper) 0-87081-565-2 (cloth)

Also in 2001, another book that deals with trees and pollinators was published.

**“Árboles Melíferos Nativos de Mesoamérica”** by Henry Arce, Luis Sánchez, Judith Slaa, Pablo Sánchez-Vindas, Alberto Ortiz, Johan van Veen, and Marinus Sommeijer. The book is in Spanish, and has 207 pp. This is a nicely compiled guide to the melliferous trees of Costa Rica. Each tree is depicted by a high quality colour photograph or two, illustrating flowers, fruits, and growth form. The descriptions provide succinct and interesting information on habitat, seasonal flowering patterns, propagation, use, and general ecology. Before the compendium are three important chapters. They stress the diversity of tropical bees that depend on the floral resources provided by the trees they describe, the floral relations of the bees as pollinators, and the importance of protecting and conserving bees and the pollination system for the meso-American forests. Although this book focuses on trees as honey plants, it can serve as an excellent guide to the common trees of Costa Rica and the ecological lessons have general applicability. The international Costa Rican and Dutch team of authors has produced an excellent handbook with greater value than the title might suggest.

H G. Arce, L A Sánchez, J Slaa, P E Sánchez-Vindas, A Ortiz M, J W van Veen, and M J Sommeijer, 2001. *Árboles Melíferos Nativos de Mesoamérica*. Centro de Investigaciones Apícolas Tropicales, Universidad Nacional de Costa Rica (PRAM-CINAT-UNA-UU), Heredia, Costa Rica. ISBN 9968-870-00-5.

Most recently, 2002, the much anticipated book **“Pollinating Bees: The Conservation Link Between Agriculture and Nature”** has been published. This book, with 313 pp., is a compilation of papers that were delivered as part of an international workshop on the ‘Conservation and Sustainable Use of Pollinators in Agriculture, with Emphasis on Bees’, held in São Paulo, Brazil in October 1998. This workshop was part of the international initiative, spearheaded from Brazil, with respect to pollination and the Convention on Biodiversity. Following a dedication to the late Professor Soichi Sakagami, and celebrations for Professor Charles Michener and Padre Jesus Moure, the book is presented as four Sessions, paralleling the workshop activities. The authors of the 26 main chapters comprising those sessions are internationally recognized for their respective expertise. Thus the book presents a thorough account of the ‘Main issues in pollination and bee conservation’, ‘The state of the art in bee conservation for agriculture and nature’, ‘Methodology for pollinator diversity and abundance’, and ‘Neotropical crop pollination’. The final part of the book presents an abbreviated

version of the 'São Paulo Declaration on Pollination', that has subsequently led to various activities in line with the Convention on Biodiversity around the world. This book is a valuable reference for conservation and protection of pollinator diversity and abundance. It stresses pollination as an ecosystem service upon which human well-being, and natural productivity, depend, and delves into the issues of conservation of species, spaces, and of ecosystemic processes. The lessons go beyond pollination, pollinators, and bees by illustrating the integrated nature of life on earth.

Kevan, P. G., V. Imperatriz-Fonseca, G. W. Frankie, C. O'Toole, R. Jones, and C. H. Vergara (eds) 2002. *Pollinating Bees: The Conservation Link Between Agriculture and Nature. Proceedings of the Workshop on the Conservation and Sustainable Use of Pollinators in Agriculture, with Emphasis on Bees, held in São Paulo, Brazil in October 1998*. Ministry of Environment, Secretariat for Biodiversity and Forests, Brasília, DF, Brazil. [cid@mma.gov.br](mailto:cid@mma.gov.br)

## THESES

### **Immunocytochemical localization of allergenic proteins and aerobiology of Urticaceae pollen**

Ana M<sup>a</sup> VEGA MARAY. Departamento de Biología Vegetal, Universidad de León (Spain), September 2002

In this study, a 7-day LANZONI pollen trap (Hirst type) was used, fitted with a melinex strip, from February 1<sup>st</sup> 1995 to December 31<sup>st</sup> 2000. The model proposed by the Spanish Aerobiological Network (REA) was followed to analyse the melinex strip (Dominguez et al., 1991). The Spearman test was used to analyse the statistical correlation with the main meteorological factors in different main pollination periods (MPP). For ultrastructural and immunocytochemical study, mature and activated (10, 15 and 20 minutes) pollen grains of two species of Urticaceae, *Parietaria judaica* and *Urtica dioica*, were fixed in paraformaldehyde and glutaraldehyde, post-fixed in osmium tetroxide and embedded in Spurr's resin. Immunogold localisation of allergens in the pollen of both species was performed using two monoclonal antibodies: anti-Par j 1 (2.2.3.) and anti-Par j 1 (4.1.3.), and also sera of sensitised patients.

Urticaceae pollen grains are one of the most significant pollen allergen types in Ponferrada-León (NW Spain). During 1999 and 2000, 653 and 670 pollen grains/m<sup>3</sup> were counted, respectively. June and July are the months where these values are at a maximum. The "intradurnal distribution index" shows uniform behaviour for the pollen studied. The most positive influential parameters on Urticaceae pollen concentrations in this city, are: temperature (maximum, mean, minimum, dry, humid and dew point), absolute humidity, mixing ratio, and S.W. wind direction. While, the most negative parameters are: rainfall, relative humidity and windless periods, which cause a significant drop in atmospheric pollen concentrations. The higher Spearman coefficients are related to temperature. The Spearman correlation analyses are better with absolute humidity than with relative humidity, absolute humidity analysis must be included in this kind of study. The choice MPP has an influence on the Spearman correlation analysis. In this work, it is observed that the best results were for the complete pollination period (CPP), and the worst results were with the Mullenders et al. (1972) main pollination period. Furthermore, when pollen grains are in higher airborne concentrations for a period the Nilsson & Persson (1981) main pollination period gives the best correlations. However, when the airborne concentrations are small for a long time, the complete pollination period is better.

The ultrastructural study shows important differences between mature and activated *P. judaica* pollen. In mature pollen grains many vacuoles, few plastids and bigger RER packets can be observed; but in activated pollen there are few vacuoles and plastids, many starch grains and no RER packets. Furthermore, during the first minutes of this activation, a significant morphological change to intine 3 is observed.

In activated pollen grains the localization of allergenic proteins was remarkably different from that observed in mature pollen grains. The allergenic proteins of *P. judaica* pollen grains are released and detected during the first 10 minutes of activation. It is likely, therefore, that the allergenic proteins located in *P. judaica* pollen exudates are involved in the pollen-stigma recognition process. Allergenic proteins of *P. judaica* pollen grains, are activated at the moment of pollen hydration, prior to pollen tube formation. The rapid activation and release of these proteins appears to be one of the main causes of the strong allergenic activity of these pollen grains.

Developmental differences are observed between the ultrastructure of *P. judaica* and of *U. dioica* pollen grains during activation process. Furthermore, *U. dioica* pollen grains appear to carry very few allergenic proteins. This corroborates



observations that *U. dioica* pollen has a lower allergenic potential than *P. judaica* pollen, and that there are no cross-reactions between the pollen of the two species.

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Key words: Immunocytochemistry, allergens, Par j 1 monoclonal antibody, pollen, Parietaria judaica, Urticaceae, ultrastructure, activation, germination.

## **Etude ultrastructurale et ontogénique de l'exine de quelques Boraginaceae tunisiennes** *Ultrastructural and ontogenetic study of the exine in some Tunisian Boraginaceae*

Semia LIMAM-BEN SAAD, Université de Tunis El Manar, Tunis (Tunisia), December 2002

The family Boraginaceae belongs to the order Boraginales and comprises about 130 genera and 2500 species. In Tunisia the family is represented by 49 species in 12 genera, and three tribes: Heliotropieae, Cerintheae and Borageae. The pollen morphology of 13 of these species was studied. With scanning electron microscopy (SEM) it shows a great variety of form, the number and type of apertures, and tectum ornamentation. To begin with, in the tricolporate prolate type four evolutionary aperture trends are suggested. The study of the exine with transmission electron microscopy (TEM) shows many distinctive characteristics in the infratectum, the foot layer, and the endexine, as well as a very complex aperture structure. To interpret some of these unusual characteristics, an ontogenetic study of three species was undertaken in which to observe particular characteristics of the wall and of the aperture (*Heliotropium europeum*, *Borago officinalis*, *Anchusa italica*). This allowed the timing of deposition of the various exine layers to be demonstrated, as well as the localisation of the apertural elements and, to define these characteristics with greater precision. Following

this a study of the tapetum and Ubisch bodies was carried out.

Key words: Boraginaceae, pollen, exine, aperture structure, tapetum, Ubisch bodies, ontogeny

## **Reconstitution des paysages et des climats contemporains des Homo neanderthalensis d'après l'analyse pollinique de deux sites moustériens ligures: la grotte de Madonna dell'Arma (San Remo) et la grotte de Santa Lucia Superiore (Toirano)** *Reconstruction of contemporary landscape and climate of Homo neanderthalensis following a pollen analysis of two closely associated Mousterian sites : the cave of Madonna dell'Arma, and the cave of Santa Lucia Superiore (Toirano)*

David KANIEWSKI, Muséum National d'Histoire Naturelle, Paris (France), December 2002

## **Histoire, classification et phylogénie des Olacaceae R. Brown (Santalales)** *History, classification and phylogeny of Olacaceae R. Brown (Santalales)*

Valéry MALECOT, Université Pierre et Marie Curie, Paris (France), November 2002

The family Olacaceae Brown belongs to the order Santalales where most woody hemiparasitic Angiosperms occur. A phylogenetic study was performed using anatomical, palynological and morphological characters as well as nucleotide sequences of nuclear small (18S) and large subunit rDNA (26S) and the chloroplast genes *rbcL* and *matK*. Phylogenetic analyses using maximum parsimony, maximum likelihood, and Bayesian inference, recognized two groups of Olacaceae: a clade of autotrophic taxa and a grade or clade of hemiparasites. A review of the types of fossil pollen belonging to the family (particularly from tribe Anacoloseae) allowed an hypothesis to be proposed about the migration of tribe Anacoloseae since Maastrichtian, and about the origin of root hemiparasitism in the order Santalales. Use of the NPRS (Non Parametric Rate Smoothing) method of

estimation of absolute rate of molecular evolution gave divergence times within Olacaceae. Comparison of data showed that major global geodynamic and paleoclimatic events have influenced the spatio-temporal distribution of several members of the family.

Key words : Olacaceae, Santalales, *Anacolosidites*, parasitism, morphology, palynology, phylogeny, paleobotany, geographical distribution, *rbcL*, *matK*, 18S, 26S, LSUrDNA, SSUrDNA.

**Les habitats littoraux néolithiques des lacs de Chalain et Clairvaux : collecte du bois de feu, gestion de l'espace forestier et impact des exploitations sur le couvert arboréen entre 3700 et 250 av. J.-C. Analyses anthracologiques. Forest clearing and the impact of tree cover exploitation between 3700 and 350 BC. Anthracological analysis**

Alexa DUFRAISSE, Université de Franche-Comté, Besançon (France), December 2002.

## IN MEMORIAM

### Lolita J. Bulalacao



Professor Lolita Jagudilla-Bulalacao passed away on October 16, 2002 from a debilitating breast cancer. She was 60. Known for her admirable work ethic, she had planned to continue her work in the National Museum of the Philippines, Metro Manila, where she had worked for 11 years.

Prof. Bulalacao was born on August 28, 1942 in Iloilo province in the Visayas. Her first job as a secondary school teacher was not an easy one. Nevertheless, she held the post from 1963 to 1978. During this period, in 1974, she obtained her

Master's degree in Biological Science from the University of Santo Tomas (UST). Later on, in 1984, she was to achieve her doctorate from the same university. Her apprenticeship with Dr. Romualdo del Rosario, the Head of the Botany Division of the National Museum, as well as being her being a Professor at the University of Santo Tomas, lead to her appointment as Senior Museum Researcher in the Botany Division, of the National Museum in 1991. Shortly after she was awarded the title of Scientist II of the Department of Science and Technology and the Civil Service Commission.

Dr. Bulalacao formally established the Palynology section at the National Museum in November 1981. She undertook and completed ten research projects on pollen. She also collaborated with the Section of Allergy, at the Philippine General Hospital in Metro Manila. Concurrent with her post at the National Museum, she was a Professor and Dean of the Graduate School of the University of Perpetual Help, Rizal. Among her many professional memberships, she was a Councillor of the International Federation of Palynological Societies, President of the Philippine Palynological Society, project leader of the National Research Council of the Philippines and a member of various local and international societies for palynology and plant systematics.

She is probably best known for her book 'Pollen Flora of the Philippines, Volume 1'. She started this pollen flora during her postdoctoral fellowship in the Palynological Laboratory, of the Swedish Museum of Natural History, Stockholm, under the guidance of the late Prof. Siwert Nilsson, whom she always referred to as her mentor. It is poignant, therefore, that her obituary and that of Prof. Nilsson appear in the same issue of PALYNOS. Another key figure in her pursuit to publish her pollen flora was Dr. Keith Ferguson of the Royal Botanic Gardens, Kew, UK. Dr Ferguson accepted her proposal to spend six months sabbatical at Kew, where she could spend time producing the pollen preparations and images she so badly needed. During a very happy period spent at Kew, she produced the SEM micrographs to illustrate the pollen flora. In Manila she had no facilities to do this. With further support from the Department of Science and Technology and the National Research Council of the Philippines, Part I was published in 1997.

The excellent reviews of The Philippine Pollen Flora which followed in Grana, and the newsletter of the Linnean Society Palynology Specialist Group, as well very positive comments from the Hugo de Vries Laboratory, University of Amsterdam, prompted her to start Volume II. She realised that the lack of laboratory facilities in the

Philippines posed a problem, so she arranged to travel to Japan on two separate occasions. Firstly, to Tohoku University, and Okayama University, and then to the Forestry Breeding Centre, Hokkaido to collaborate with Japanese palynologists and to work in their laboratories. Dr Bulalacao was successful in producing good quality SEMs in these laboratories. Unfortunately the demanding work and travel schedule proved too much for her failing health.

Her last trip abroad was to the National Herbarium of the Netherlands in Leiden, where she worked on her contribution for the Flora Malesiana with the help of Dr. Peter van Welzen. She also continued to work on the pollen flora while she was there with Dr. Raymond van der Ham. Soon after this visit Volume II of the 'Pollen Flora of the Philippines' was completed, and ready for press. Sadly, just a few weeks after the project was successfully reviewed by the Department of Science and Technology, she was hospitalized and never recovered.

A loving wife to her husband Jimmy and a caring mother to her daughter Grace. She was a tireless campaigner for pollen studies in the Philippines and her work will be an inspiration to all of us.

Vernie G. Sagun  
Ateneo de Manila University  
The Philippines

## Siwert Nilson



Professor Siwert Nilsson died suddenly August 19<sup>th</sup> 2002. He was born July 30<sup>th</sup>, 1933 in the northern part of Sweden. Siwert obtained his MSc (botany, geography, zoology) in 1959 at Uppsala University, Institute of Systematic Botany and, in 1965, his Licentiate degree at the same institute. In 1959 he also became an assistant at the Swedish Council of Natural Sciences, in the Palynological Laboratory in Stockholm, under the leadership of Professor Gunnar Erdtman.

Siwert was deeply involved in pollen morphological studies of the families Apocynaceae and, more particularly Gentianaceae. In 1970 this resulted in a brilliant defence of his thesis entitled 'Pollen Morphological Studies in the Gentianaceae' and the award of a PhD. In 1975 the Palynological Laboratory was transferred into the Swedish Museum of Natural History in Stockholm. Simultaneously Siwert Nilsson took over its leadership, and remained there as Director until his retirement on July 1<sup>st</sup> 1998. In 1992, in recognition for his scientific achievements both nationally and internationally, Siwert was appointed Professor in Palynology.

Siwert's interests were not confined to pollen morphology. In 1973 he initiated a research programme on aerobiology. At first carrying out studies on airborne pollen grains in the Stockholm region. In Sweden he was undoubtedly a pioneer in the field of aeropalynology. The research was carried out in co-operation with meteorological and medical institutions in Stockholm. Results of the analysis of local airborne pollen carried out by the laboratory, were provided on a daily basis to the press and radio in Stockholm, and thus communicated to the public. He was passionate about aeropalynology, and the discipline soon gained international recognition for its value in monitoring allergenic pollen in the air.

Siwert Nilsson attended many conferences on pollen morphology, and aerobiology. Besides Europe his travels took him to many other countries all over the world, to present his work, and organise seminars. He also organised several courses in Sweden at the Palynological Laboratory, the University of Stockholm, the Karolinska Hospital, and also abroad at the Universities of Bergen, Norway; Turku, Finland; Kingston, Jamaica; Amazonas, Brazil; Pretoria and Bloemfontein, South Africa and Havana, Cuba among others. Siwert was a great teacher, and it was a role he enjoyed, and he was much appreciated for his qualities in this respect. Under his leadership postgraduate students from both Swedish and foreign universities, came to carry out pollen morphological studies, leading to PhD awards.

Siwert Nilsson was always very enthusiastic about his work and had an impressive list of publications consisting of about 100 papers and several books. He is also well known as an editor. In the late sixties he was assistant editor for the review *Grana Palynologica*, and from 1976 co-editor of *Grana*, of which he became Editor-in-chief in 1985. Also, Siwert edited the occasional publication, the *World Pollen and Spore Flora (WPSF)*, until his retirement. During 2002 Siwert again took on the role of Editor-in-chief of *Grana* and the *WPSF*,

following the tragic death of Gamal El-Ghazaly in 2001. After his retirement, Siwert Nilsson continued his scientific activity at the Palynological Laboratory as Professor Emeritus. Until his death he remained Editor-in-chief of *Grana*, the journal that he edited so successfully, for many years. He was honoured with awards and medals by many scientific organisations.

His sudden, and early, death was a terrible shock for his family, as well as members of the Palynological Laboratory, and Palynologists all over the world. This tragic event has touched us

with sorrow, and we miss him. Siwert will always be remembered as a fair and amiable leader, a helpful colleague, and a dear friend.

(A full list of Siwert's publications will be published in *Grana*)

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