

# PALYNOS

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NEWSLETTER OF THE INTERNATIONAL FEDERATION OF PALYNOLOGICAL SOCIETIES

## IFPS COUNCILLORS

**Yuichi Takahashi replaces Takashi Yuchiyama and Shinya Sugita for the Palynological Society of Japan (PSJ)**

**Y. Takahashi**



I am a chief researcher of The Yamagata Prefectural Institute of Public Health, Yamagata, Japan. I earned an M.S. degree in 1973 from Hokkaido University School of Science. Later, I was awarded a PhD at the School of Medicine, Yamagata University, in 1984 for a thesis entitled "Analysis of cross-reactivities among fruit pollen allergens".

My particular interest is in the aerodynamic behaviour of airborne pollen allergens. I have been engaged in new pollen allergen analysis and sampling techniques. I spent 1994 (Feb to June) at Palynological Laboratory, Swedish Museum of Natural History, as a research fellow at the invitation of the late Professor Siwert Nilsson. I

was an invited speaker at Second European Symposium on Aerobiology, held in Vienna Austria in 2000.

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**Dagfinn Møe replaces Stefan Piasecki for Collegium Palynologicum Scandinavicum (CPS)**

**D. Møe**



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Tel.: 47.55.58.3345/3339, Fax: +47.55.589667. Email: [dagfinn.moe@bot.uib.no](mailto:dagfinn.moe@bot.uib.no).  
Scientific education: Cand. real. (Master degree): University of Bergen (1968); D. Phil. (1979). Dagfinn

has worked at the University of Bergen, in the Botany Department, from 1967, both as curator and as a teacher. He has been a guest lecturer and teacher for a number of palaeoenvironmental research groups, mainly in Europe. During the last 10 years a major part of his international lecturing activities, on palaeoecological topics, has been at the Universities of Vilnius (Lithuania) and Innsbruck (Austria). He has been an active member, or leader, of numerous internal, national and international scientific and administrative boards. He has also initiated a number of workshops and meetings, for example, in 2001: “*Natural scientific documentation strategy of ancient gardens*”, held in Bergen, Norway.

Dagfinn’s scientific research interests include: Floral history of selected species; Vegetation history in general, and particularly human disturbance on vegetation at higher altitudes (Central Italian Alps and Scandinavia); Coprolite and faeces studies; Stalagmite (lime-cave) studies; Ancient gardens, and the cultivation and uses of the plants (species, forms and varieties); Museum techniques and organization, and Public relations related to museum work, including

exhibitions. Dagfinn has published over 200 scientific and popular scientific papers, plus a number of books, many of which are interdisciplinary in character.

## NEWS AND VIEWS

### 25th anniversary of APLE

This year the Spanish Palynological Association (APLE) celebrated the 25th anniversary of its foundation. The event, which took place in the Conference Hall of the Royal Botanical Gardens in Madrid, was organised by Concepción Sáenz Laín, one of the founder members, and Ana Teresa Romero, the President of the Association. Forty-four members attended the celebration, at which the following talks were given:



- “Palynology in Spain: a review of the history of publications on the subject” (Concepción Sáenz Laín)
- “The Development of Palaeopalynology in APLE”(Rosario Rivas Carballo)
- “Studies of living pollen in APLE” (Ana Teresa Romero)

- Presentation of the commemorative CD “APLE: 25 years of science and friendship”(Irene La Serna Ramos)

The aims of the meeting were to find out more about the areas currently being studied by the various groups belonging to APLE and to remind its

members of the important events that have occurred in the 25 years of the association's existence. The atmosphere of the meeting was friendly and relaxed, especially during the presentation of the commemorative CD, which captures images and includes records of the significant things which have happened to the association and its members during its 25-year history. The CD has been sent to all the members of APLE in a convenient holder. At the end of the celebration the Past Presidents, Vice-Presidents, Secretaries and Treasurers were presented with small gifts in recognition of their services to the association. We were then invited by the Directors of the Royal Botanical Gardens to a reception in the gardens, after which we retired to a nearby restaurant for a delicious lunch.

The next meeting of APLE will take place during the 11 IPC due to be held in Granada from 4 to 9 July 2004.

Submitted by Ana T. Romer

### **TMS Palynology Group Meeting, Department of Geology, University of Leicester, 19<sup>th</sup> March 2003**

The annual meeting of The Micropalaeontological Society's Palynology Group was held at the University of Leicester. Gary Mullins organised a successful event that was attended by twenty-five members. Seven lectures were given on diverse topics, reflecting recent research projects undertaken by the speakers. Abstracts are available on the Palynology Group web page of the TMS, [www.tmsoc.org](http://www.tmsoc.org)

The head of the Department of Geology, Prof. Dick Aldridge, opened the meeting with a welcome speech. Duncan McLean chaired the first session. John Marshall (University of Southampton) started the talks, "The Millennium Atlas of the North Sea: Devonian chapter – the spore story". John discussed a re-evaluation of the Permian-Devonian stratigraphy in many North Sea wells and showed slides of outcrops from Scotland, Orkneys and Greenland, where lithostratigraphic units identified in wells from palynological and wireline data, are exposed. Ken Dorning (Pallab Research / University of Sheffield) addressed, "Observations on the

classification of the acritarch microflora and Palaeozoic prasinophycean algae". He illustrated problems of consistently applying acritarch subdivisions and suggested that acritarch vesicle, process and flange morphology, together with vesicle wall ultrastructure and excystment mechanism, can be used to cluster forms with similar morphological characteristics that may be of greater practical value in palaeo-environmental interpretation. Gary Mullins (University of Leicester) reviewed different lines of evidence regarding how and why some acritarchs, algae and dinoflagellate cysts form monospecific clusters, and discussed this with reference to some of his research material, "Aggregates of the acritarch *Dilatisphaera laevigata*: faecal pelletization, phytoplankton bloom or defence against phagotrophy?" Lisa Buckley (University of Newcastle) discussed her Ph.D. work on palynofacies and geochemistry of mid-Cretaceous cores from hydrocarbon wells, "Cretaceous crud from Canada... palynofacies analysis of the Colorado Group, Western Canada Sedimentary Basin".

Gary Mullins chaired the second session. Will Gosling (University of Leicester) outlined his Ph.D. work on, "The characterization of Amazonian ecosystems by their modern pollen spectra". Will has been carefully sampling pollen rain from 'terra firma rain forest', 'semi-deciduous dry forest' and 'cerradao savanna' ecosystems. He discussed the limitations of applying such data to interpreting the fossil record. Duncan McLean (McLean, Owens & Bodman, University of Sheffield) described, "Palynostratigraphy of the Late Carboniferous Langsettian-Duckmantian boundary in Britain". The high-resolution distribution of spore zonal markers around the Vanderbecke Marine Band at the Duckmanton stratotype and in core from North Sea well 44/22-1 was discussed. Ken Dorning spoke about, "Late Ordovician and Silurian climate change: evidence from the marine phytoplankton record", and opened the debate to the audience.

Discussions continued over cheese, snacks and wine, sponsored by TMS. Many of us went on to a nearby pub and, after regaining our appetites, a curry house. Paul Dodsworth & Susanne Feist-Burkhardt, TMS Palynology Group Secretary & Chair

## Meeting "Introducing genetic and palaeogenetic approaches in plant palaeoecology and archaeology", Bordeaux, 4-6 September, 2003.

The meeting "Introducing genetic and palaeogenetic approaches in plant palaeoecology and archaeology" which marks the end of the EU project FOSSILVA is co-organised by INRA and CNRS and will take place in Bordeaux (4-6 September 2003) immediately after the APLF symposium. It will be the very first meeting exclusively devoted to fossil DNA from plant remains and related questions. To know more about it and register, please open the following web site:

<http://www.pierroton.inra.fr/>

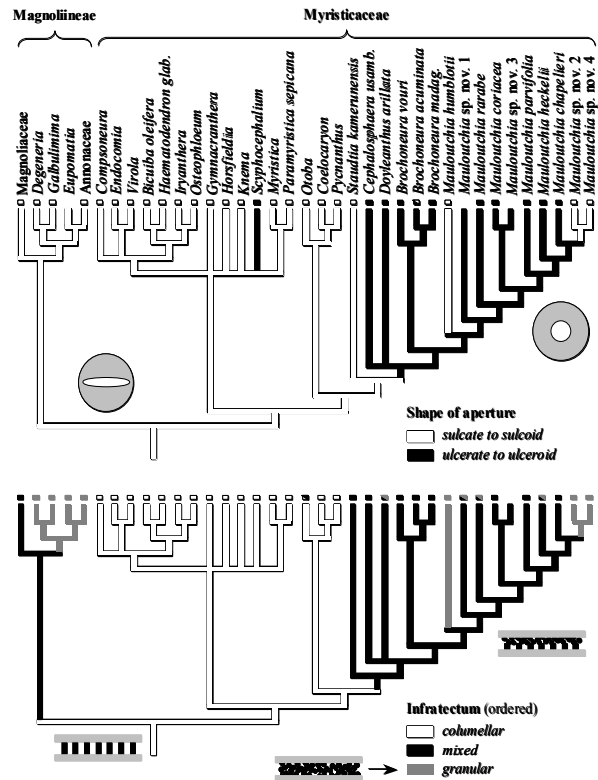
## Pollen diversity and evolution in Myristicaceae (Magnoliales).

Sauquet, H, and Le Thomas, A. (*In press*). *International Journal of Plant Sciences*.

Myristicaceae consist of 21 genera and nearly 500 species of lowland rainforest trees with a pantropical distribution. This paper presents new SEM observations on pollen of 13 genera, including all Asian genera, which had previously received very little attention from palynologists. While confirming that all Myristicaceae have monoaperturate pollen shed as monads with a sculptured aperture membrane, this study increases our knowledge of the diversity of pollen shapes, aperture shapes, tectal sculpture and microsculpture, and infratectal structure across the family. It also clarifies a few characters in previously investigated Afro-Malagasy taxa. These results are discussed in the context of a recent phylogenetic study. While several pollen characters appear to be homoplastic, aperture shape, tectal sculpture, and infratectal structure seem to be of great phylogenetic value in Myristicaceae and clearly distinguish an Afro-Malagasy clade of five genera (including *Mauloutchia*) from the rest of the family.

Contrary to previous assumptions on character polarity, the ulceroid aperture shape and mixed (to granular) infratectum of most species in this clade both appear to be derived features, whereas the common ancestor of Myristicaceae likely was

characterized by sulcate pollen with a columellar infratectum. A continuous tectum also clearly sets apart the members of this Afro-Malagasy clade from the rest of the family, which has a reticulate to rugulate tectum. However, the status of this character in the ancestor of Myristicaceae remains equivocal.



parsimony optimization of two important pollen characters found in a combined morphological and molecular phylogenetic study of Magnoliales and Myristicaceae based on chloroplast DNA and nuclear DNA data. *International Journal of Plant Sciences* 174(2): 125-186. Redrawn from Sauquet & Le Thomas, in press, *Int. J. Plant Sci.*

## THESES

### Origin, phylogeny, morphological evolution, and biogeographic history of Myristicaceae (angiosperms: Magnoliales)

Hervé Sauquet, Paris, June 2003

On the one hand, this thesis aims at clarifying the origin of Myristicaceae (500 species of tropical trees) by reconstructing a solid phylogenetic

hypothesis for Magnoliales (6 families, 3000 species) and discussing its morphological implications. On the other, this work intends to resolve the relationships among the 21 genera of Myristicaceae and to examine their implications for the morphological evolution and biogeographic history of the family. A large morphological matrix (115 characters) and twelve molecular data sets (a total of over 14000 aligned nucleotides) were assembled and analyzed with the parsimony and maximum likelihood criteria. Combined analyses converged towards a fully resolved and well-supported topology at the Magnoliales level: Myristicaceae + [Magnoliaceae + [[*Degeneria* + *Galbulimima*] + [*Eupomatia* + Annonaceae]]]. These results imply that several supposedly plesiomorphic traits of Magnoliales are synapomorphies of Magnoliineae (sister group of Myristicaceae) or the 4-family clade that diverges after Magnoliaceae. In contrast, resolution of relationships within Myristicaceae is difficult and still incomplete but the obtained results clearly indicate that the Malagasy genus *Mauloutchia*, previously thought to be basal in Myristicaceae, is instead deeply nested in an Afro-Malagasy clade of five genera. This result contradicts a number of previous assumptions on the polarity of character transformation in the family. Among other methodological implications, this work emphasizes the complementarity of morphological and molecular data and the need for phylogenetic studies focused on one particular taxon to further test, specify, and properly discuss results emerging from higher-level studies.

## NEW BOOKS

### **The Northwest European Pollen Flora - Vol VIII -**

Punt W., Blackmore S., Hoen P.P., Stafford P.J. editors.  
 Review of Palaeobotany and Palynology, Volume 123/1-2  
 ISBN 0-444-82757-9, 196 pp. Price : 175 euros

This volume should be seen as an extension to both the existing publications for pollen identification and traditional floras based on gross morphology. In the NEPF a pollen type provides the basis for hierarchical construction around

which the diversity of palynomorphs can be organised and interpreted. It is not a physical specimen in a herbarium, as is the type of a species name, but rather a published account comprising detailed descriptions and comprehensive illustration.

In Volume VIII of the "Northwest European Pollen Flora" the following families are studied : Osmundaceae, Azollaceae, Salviniaceae, Droseraceae, Aizoaceae, Aristolochiaceae, Rhamnaceae, Vitaceae, Betulaceae 'inc. Corylaceae), Myricaceae, Onagraceae and Lythraceae.

### **Aspects of Palynology and Palaeoecology Festschrift in honour of Elissaveta Bozilova**

Tonkov, S. 2003.  
 ISBN 9546421790, Pensoft Publishers, Sofia-Moscow, 165x240, tables, graphs, b/w and colour photos, bibliography. In English. Hardback, 282 pp.  
 Price EURO 58.50  
 Surface mail delivery EURO 7. Airmail delivery overseas EURO 22.00

Professor Dr. Sc. Elissaveta Bozilova is an outstanding Bulgarian botanist who has been working successfully since the early 1960's in the field of palynology and palaeoecology. She has published more than 140 scientific papers in national and international journals, symposia proceedings and books, related to Quaternary flora and vegetation history, marinopalynology, aeropalynology, melissopalynology, pollen morphology, pollen monitoring, pollination ecology and archaeobotany. Her most important professional merit is the organization, administration and establishment of the Laboratory of Palynology at the Department of Botany, Sofia University "St. Kliment Ohridski", as the leading scientific and educational centre in basic and applied palynology in Bulgaria.

This jubilee volume comprises papers dealing with various aspects of palynology and inferences drawn from pollen-based research. In particular, new and detailed palaeoecological information is provided for selected areas in Europe related to the postglacial vegetation development, climate change, environmental history and human impact. The book will be of use to scientists working in

palynology, palaeoecology, palaeogeography, geology, climatology, archaeology and forestry.

TO ORDER ONLINE:

[www.pensoft.net/notes/10602.stm](http://www.pensoft.net/notes/10602.stm)

## **Morphology, classification and description of form-genera of Late Paleozoic miospores**

Oshurkova M.V.

SPb.: VSEGEI Press, 2003. 377 p. ISBN 5-93761-051-2. Price: \$US 65.00

Morphology of fossilized spores and pollen grains is discussed, notions and terms used in miospore description by means of light microscope are specified book, and a glossary is given. Rules of creating morphological miospore classification are discussed. It is suggested that morphological classification of dispersed miospores of R. Potonie and G. Kremp should be used with more precise definitions in accordance with strict rules of classification construction – distinguishing taxa of one hierarchical level using one morphological feature. Morphological features necessary and sufficient for distinguishing all taxa of the supergeneric level should be mentioned in their characterization. Unified descriptions of diagnoses of Devonian, Carboniferous, and Permian miospore form-genera are published. Basic species composition of a genus is given with works containing first description of the species as well as information on geographical and stratigraphic position and dimensions of miospores described in this work. As a result of the revision of species descriptions published earlier, many of them have been newly grouped into form-genera in accord with the current understanding of morphological features. Lists of basionym species are compiled with corresponding species in modern nomenclature. Lists of species most frequently used in the modern nomenclature are given. Index of genera-synonyms is compiled with the indication of a corresponding genus where to they are assigned. Descriptions of 11 new taksons of supergeneric level are resulted, as well of 345 form-genera miospores of Devonian, Carboniferous and Permian; 17 form-genera are emended and 12 are new. Information on 2364 species and for 628 the new combinations are given.

The book can be used by palynologists and geologists in biostratigraphic studies of Late Paleozoic deposits and as a textbook.

To order the book, or for further information contact M.V. Oshurkova at: [vsegei@vsegei.sp.ru](mailto:vsegei@vsegei.sp.ru)

## **Terrestrial Paleocology and Global Change**

Krassilov V. A.

Russian: Academic Monographs, No 1, ISBN 9546421537, full colour edition, 170x240, graphs, photos, tables, bibliography. In English.

Hardback, 480 pp. Price USD or EURO 74.50.

Surface mail delivery USD/EURO 7.

Airmail delivery overseas USD/EURO 26.00

This book critically evaluates currently popular ideas of global change based on plate tectonics, extraterrestrial impacts, greenhouse warming, etc. and offers alternative models. Krassilov presents ecosystem evolution as a sustainability oriented process with an increase in the biomass-to-dead mass ratio as a measure of progress. This general tendency is reversed by the geobiospheric crises starting in the earth's interior and surfacing as concerted geomagnetic, tectonomagmatic, geochemical and climatic events. These affect biota through turnovers of biotic communities and adequate changes in population adaptive strategies, a major force under the species originations and extinctions, as well as genomic evolution. The evolution of humans is envisaged as leading the species towards the role of earth's custodian. The book is important for evolutionists, ecologists, geologists, climatologists, geneticists, integrative biologists, botanists, zoologists, and any educated person who is intrigued by the dynamic historical processes which shape the evolution of biosphere. It could be used as a course book for undergraduate and graduate studies. It is an excellent example of inspiring and creative interdisciplinary research of our planet. Valentin Krassilov is the author of 20 books, among them the Palaeoecology of Terrestrial Plants, Cretaceous Period, Angiosperm Origins, Ecosystem and Ecosystem Evolution, etc. This new book is based on a lifetime of experience in the fields of palaeobotany, palaeoecology, structural geology and evolutionary biology.

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## IN MEMORIAM

### Irina Z. Faddeeva

Dr. Irina Z. Faddeeva a leading Scientist at the A.P. Karpinskiy All Russian Geological Research Institute (VSEGEI, St.-Petersburg) died on September 7, 2002 at the age of 76. Dr. Faddeeva was a well-known specialist in Permian palynostratigraphy.

Prof. Maya V. Oshurkova  
VSEGEI, St.-Petersburg, Russia

### Monna R. Meyer-Melikian



Nonna R. Meyer-Melikian died of a heart attack on May 5, 2003, she was only 65. Nonna was born in Erevan, Armenia, on August 2, 1937. In 1955, at age eighteen, she enrolled in the Faculty of Biology and Soil Sciences of Lomonosov Moscow State University (MSU). Until her sudden death, her life had been devoted to plant science in the Department of Higher Plants at MSU.

In 1965 she obtained her candidate degree (Russian equivalent of Ph.D.) following completion of her thesis, '*Palynological Investigations of a Range of Orders Helobiae and the family Nymphaeaceae D.C. for Systematic Paleogeography*'. In 1977 she obtained her doctorate degree (Russian equivalent of professor) following completion of a paper entitled, '*Comparative Morphological*

*Investigations of Sporoderm Development and Ultrastructure in Gymnosperms and Ancient Angiosperms*'. In 1978 she visited the palynological laboratory of Budapest University, and in 1983 she visited the palynological laboratory of the Swedish Museum of Natural History. In 1995 she became the leading researcher at the Department of Higher Plants at MSU, and in 1998, she became a professor in the same department.

As a leader of modern palynology, Nonna studied exine development in seed plants (gymnosperms and archaic angiosperms) and exine ultrastructure of fossil ferns and gymnosperms, contributing significantly to the theory of higher plant evolution. She initiated electron-microscope investigations in Russian botany, and developed a complex method for consecutive study of a single pollen grain/spore using a light microscope, scanning, and transmission electron microscope to study the same pollen grain. Her aeropalynological works of pollen rain dynamics and human and animal pollinoses are important for various branches of science, and these studies have also contributed specifically to the European Bank of Aeropalynological Data. Under her leadership and supervision, numerous projects have been successfully completed, including the following: '*Pollen grains of the plants growing in the territory of Russia*,' '*Pollen morphology and the origin of angiosperms*,' '*Basic morphological types of plant pollen grains from the forest-steppe of European Russia*' '*Dynamic of pollen rains and palynological monitoring*,' and '*Palynomorphology of the family Asteraceae*.' At the time of her death she was leading a team studying *Asteraceae* exine morphology and ultrastructure.

She was an active member of the bureau of the Russian Palynological Committee, Committee of Professor Dissertations at Timiryasev Moscow Agricultural Academy, Co-ordinating Council of the Russian Academy of Sciences, Russian Botanical Society, Russian Paleontological Society, and Moscow Society of Naturalists. She participated actively in Russian and international palynological and botanical conferences.

She was the author or co-author of more than 150 publications, including '*Methodical basis of palynology*' (1987, with Zaklinskaya *et al.*), '*Spores from the boundary of Timano-Pechora*

*Province*' (1993, with Telnova),  
'*Aeropalynological Methods*' (1999, with Severova *et al.*), and '*Spores from the reproductive structures of Devonian plants*' (2002, with Telnova).

An enthusiastic student of palynology and a brilliant teacher, she planted her passion for botany and palynology in the hearts of many undergraduate and graduate students. At MSU, Moscow State Teachers' Training University, and many other universities of the former Soviet Union, her work has inspired students in classes on 'Plant Electron Microscopy,' 'Sporoderm Ultrastructure of Higher Plants', and 'Exine Development in Pollen Grains and Spores', as well as her foundation course in 'Palynology and Pollen and Spore Analysis'.

Creative, buoyant, energetic, and brilliant, Nonna was a wonderful woman who will be desperately missed by her family, her colleagues, her students, and her friends.

[A full list of Nonna's publications will appear later this year in a special palynomorphological volume of the Bulletin of the Moscow Naturalist's Society, dedicated to her memory.]

#### Principal publications

- 1976. Some additional data on the morphology *Degeneria vitiensis* (Degeneriaceae), Bot. Zh., vol. 61, no. 11. (with Takhtajan, A.L., in Russian).
- 1979. On the morphology and systematic position of the family Hydnoraceae, Bot. Zh., vol. 64, no. 12. (with Takhtajan, A.L., in Russian).
- 1980. The phylogenetic significance of the development of pollen grains walls in Liliaceae, Juncaceae and Cyperaceae. (with Yarochevskaja, A.S.) In: The evolutionary significance of exine. I.K. Ferguson, J. Miller (Eds.), London.
- 1985. Pollen morphology and systematic of the family Rafflesiaceae s.l. Bot. Zh., vol. 70, no. 2. (with Takhtajan, A.L., in Russian).
- 1987. Methods of palynology. Moscow, "Nedra" (with Zaklinskaya, E.D. *et al.*, in Russian).
- 1990. Angiosperm pollen from the Barremian and Aptian deposits of the Dnieper-Donetsk depression, Bot. Zh., no. 7. (with Voronova, N.N., in Russian).
- 1993. Spores from the boundary of the Timano-Pechora Province. Saint Petersburg, "Nauka" (with Telnova, O.P., in Russian).
- 1996. Ultrastructure of pollen grains of the order Nymphaeales. Bot. Zh., vol. 81, no. 7. (with Diamandopulu, N., in Russian).
- 1996. Electron-microscopical investigations of pollen grains of the most ancient angiosperms from the Dnieper-Donetsk depression. Proceeding of XXXIV session of All-Russian Paleontological Society, Moscow. (with Voronova, N.N., in Russian).
- 1996. Dispersed Distalsulcate pollen grains from the Lower Jurassic deposits of western Siberia, Bot. Zh., vol. 81, no. 6, 22 p. (with Zavialova, N.E., in Russian).
- 1998. Electron-microscopical investigations of fossil gymnospermous pollen grains, Bot. Zh., vol. 83, no. 3. (with Afonin, S.A, Gomankov, A.V., in Russian).
- 1999. Methods of aeropalynological investigations. (with Severova E.E., Gapochka G.P., Polevova S.V., Tokarev P.I., Bovina I.Yu., in Russian) IGIRGI, Moscow. 48 p.
- 1999. Taxonomical content of the aeropalynological spectrum of Moscow. Bull. Moscow Naturalists' Society, vol. 104, 10 p. (with Severova E.E., Polevova S.V., Bovina I.Yu., in Russian).
- 1999. Pollen and spore morphology (terminology and conceptions). Proceedings of the IX Russian Palynological Conference (with Tokarev P.I., in Russian). 12 p.
- 2000. The origin and eventual evolutionary trends of the pollen grain, Bot. Zh., vol. 85, no. 7. (In Russian).
- 2000. Exine ultrastructure of representatives of the tribe Cardueae (Compositae). Paleontol. Zh., vol. 34, suppl. 1. (with Bovina, I.Yu., Polevova, S.V., and Severova, E.E.).
- 2000. Taxonomical content of the aeropalynological spectrum of Moscow. Bull. Moscow Naturalists' Society, vol. 105, 7 p. (with Severova E.E., Polevova S.V., Bovina I.Yu., In Russian).
- 2001. Evolutionary aspects of sporoderm stratification in seed plants. Proceedings of the symposium in memory of S.V.Meyen. (with Polevova, S.V., in Russian).
- 2001. Sporoderm development under normal and unfavorable conditions (pollen of *Cichorium intybus* L. and *Tanacetum vulgare* L.) Proceedings of the conference "Pollen for ecological indication and paleoecological reconstructions", Saint-Petersburg, 4 p. (with Polevova S.V., Severova E.E., Tekleva M.V., in Russian).
- 2001. Developmental patterns in exines of the Asteraceae. All-Russian symposium "Physiology of ontogenesis", 5p. (with Polevova S.V., Tekleva M.V., Kosenko Ya.V., in Russian).
- 2001. Ultrastructure of some Permian pollen grains from the Russian Platform, in Goodman, D.K. and Clarke, R.T. (Eds.), Proceedings of the



IX International Palynological Congress, Houston, Texas, USA, American Association of Stratigraphic Palynologists Foundation, 15 p. (with Zavalova, N.E., Gomankov, A.V.).

- 2002. Spores from the reproductive organs of Devonian plants. (with Telnova, in Russian).
- 2003. Exinal development and sporopollenin accumulation. Plant physiology, no. 3, 16 p. (with Gabaraeva N.I., Polevova, S.V., Grigor'eva, V.V., Kosenko, Ya.V., Tekleva, M.V., in Russian).
- 2003. Pollen grains of the Compositae. (Polevova, S.V., Tokarev, P.I., Bovina, I.Yu, Tekleva, M.V., and Kosenko, Ya.V., in Russian). 150 p.
- Atlas of pollen grains of herbaceous plants of Russia (light and electron microscopy). (with Severova E.E., Polevova S.V., Gapochka G.P., in Russian, unpublished). 500 p.
- Atlas of herbaceous plants of central Asia. (with Severova E.E., Polevova S.V., Bovina I.Yu., in Russian, unpublished). 500 p.

## German P. Gapochka



German P. Gapochka was born in Ryazan' on June 8, 1933. In 1952 he enrolled in the Faculty of Biology and Soil Sciences of the Lomonosov Moscow State University (MSU). Obtaining his degree in 1957, he joined the All-Union Research

Institute of Natural Gas. Since 1962, he worked at MSU, first as an instructor in the Department of Higher Plants, then as an assistant professor in the same department, and later as a deputy Dean of the Faculty of Biology and Soil Sciences, deputy Pro-rector of MSU, and deputy Head of the Department of Higher Plants. He was a member of the Scientific Council of the Biological Faculty and Joint Councils of MSU.

His research interests included palynomorphology and evolution, and nature conservation. For many years he led a team working on the 'Man and Biosphere project' under the auspices of UNESCO. He initiated the Laboratory of Ecology and Nature conservation at the Department of Higher Plants. German is author or co-author of 58 papers, including three textbooks and the monograph '*Herbaceous Plants of the Soviet Union*'.

He developed original theoretical courses for students and fellows of the Department of Higher Plants. His courses included Electron Microscopy in Botany, and 'Pollen Morphology and Pollen and Spore Analysis', the latter course was taught by him for about thirty years. Since the 1990's, he taught students in higher plants systematics and general botany. He also organized field trips. He was awarded several medals for his scientific, public, and educational activities. German P. Gapochka will remain in the memories of his friends and colleagues as a friendly and warm-hearted person.

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Please forward to the Editor:

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and don't forget to visit our **IFPS web site** at :  
<http://geo.arizona.edu/palynology/ifps.html>