

PALYNOS

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NEWSLETTER OF THE INTERNATIONAL FEDERATION OF PALYNOLOGICAL SOCIETIES

NEW IFPS COUNCILLOR

**Dr Olga
Dzyuba**

(replacing Valentina
Khomutova)

RPC

(Russian Palynology
Commission)



The death of Valentina Khomutova (obituary in PALYNOS 24/2) one of the two Russian Palynology Commission (RPC) Councillors, has necessitated the appointment of a new Councillor to succeed Valentina. This position has now been filled by Dr Olga Dzyuba, who we warmly welcome onto the IFPS Council.

Olga Dzyuba works at the 'ALL-Russian Petroleum Scientific-Research, Geological-Exploration Institute' (VNIGRI), where she is a Senior Researcher in the Laboratory of Palynology. The Institute is based in Saint Petersburg.

Olga attended Leningrad State University where she worked in the 'Institute of the Earth's Crust'. In 1988 she completed her PhD on: '*The evolution of marsh landscapes of North-West Russia in the Holocene*', at Leningrad State University. Since then she has worked for 'The National Research Institute of Peat Industry', 'The I.M. Sechenov Institute of Evolutionary Physiology and Biochemistry' (USSR Academy of Sciences), and the 'International Centre for Bioecological Control', prior to taking up her current position with VNIGRI.

Olga is the author of about 60 publications. Her main areas of interest are ecological pathology of pollen grains, evolution of angiosperm pollen, pollen morphology, Holocene and Miocene palaeoecological reconstruction, palynomorph investigation and ecological reconstruction of ancient settlements. The geographic focus of her fieldwork is in Northwestern Russia, with a special interest in western Kamchatka.

Apart from palynological meetings in Russia, Olga visited Japan for the XV Botanical Congress in 1993, and has twice visited the USA, including the 9th IPC in Houston in 1996. In 2000 she also attended the 10th IPC in Nanjing, China.

[An illustrated article by Olga Dzyuba on ecological pathology of pollen appears on pages 3-4 of this edition of PALYNOS]

NEWS AND VIEWS

AASP Primary Records Program

The American Association of Stratigraphic Palynologists (AASP) has begun to collect information on the development of the field of palynology; particularly in North America and Europe, and particularly associated with AASP, by interviewing those who helped shape palynology during the early 20th century, and who have now reached senior or retired status. The AASP Board has identified 28 persons to be interviewed, and has contacted 3 of these persons who have provided information including publications on the history of palynology, written biographies, and taped interviews.

Our goal is to make this information freely available to the scientific community, and to summarize some of the information in an upcoming article in *Palynology*. Here are excerpts provided from Cal Heusser's autobiography.

"My interest in plant science began in 1945 during WWII....I had been a chemistry major when entering military service but the lure of plants and field work became far more attractive for study when I returned to Rutgers University after the war. In the course of completing undergraduate work, I had the good fortune to come in contact with Murray Buell, who had come from North Carolina State to the Department of Botany at Rutgers. Murray was friendly, unassuming, and accessible...."

"Murray generated my initial interest in paleoecology. I did an MS thesis having to do with the "History of an estuarine bog at Secaucus, New Jersey" (Heusser, 1949). Plant fossil macroremains, the focus of the work, traced sea-level change and progressive demise of a freshwater whitecedar bog. Although Murray had become active working with fossil pollen (Buell, 1945), I did not involve myself with palynology until later, when I went to Oregon State in Corvallis, Oregon to work for a PhD...."

"Unfortunately for me, Henry Hansen, with whom I had come to study, became Dean of the Graduate School the year I arrived. Because he was busy with administrative work, I was much on my own. I would major in botany, but because my thesis was to be in palynology, there was need to minor in geology, which meant picking up necessary credits in earth science courses. I chose "Pollen Profiles from Southeastern Alaska" for a dissertation. This decision came about upon my joining the American Geographical Society's Juneau Icefield Research Project in Southeastern Alaska as plant ecologist. During 1950 and 1951, the project enabled me to collect cores for the thesis from muskegs not only about Juneau but also about Ketchikan, Wrangell, Petersburg, and Sitka."

AASP would appreciate both suggestions of who should be interviewed, and volunteers to interview persons living nearby their residences.

Please contact Owen Davis for further information, including the list of persons to be interviewed, examples of interviewing questions that have been asked, and the kinds of information that have been obtained.

Owen Davis
palynolo@geo.arizona.edu

Recent activities of the Canadian Association of Palynologists

The Canadian Association of Palynologists / Association Canadienne des Palynologues (CAP) was founded in 1979. CAP is primarily a newsletter organization, with an information-packed issue appearing twice a year. The CAP website, now located at <http://www.scirpus.ca/cap/cap.shtml>, also promotes communication among the widely scattered membership and serves as an archive for palynology-related articles and items from the Newsletter. CAP fosters interest in palynology through many activities, such as participation in geoscience meetings and encouraging publications.

Though numbers fluctuate, CAP has a core of around 50 members. Participants are drawn from all branches of palynology and work in all geologic eras. CAP numbers among its members many distinguished Canadian geoscientists. Recently, the Association has also attracted members from other micro-palaeontological fields. In common with all science in Canada, CAP has been affected by the downsizing and budget-cutting of the 1990s. Closures, mergers, and retirements have reduced the number of active palynologists in all fields. Significantly, the number of university departments in Canada offering training in palynology has also decreased in recent years. Nevertheless, CAP remains a very active organization, as the following summary of recent activities very well demonstrates.

This summer, we are looking forward to the publication of a CAP-sponsored special issue of *Palaeogeography, Palaeoclimatology, Palaeoecology* entitled *New Frontiers and Applications in Palynology and Micropalaeontology: A Canadian Perspective*. Co-edited by Martin Head and Alwynne Beaudoin, it includes ten papers illustrating a broad range of approaches to palynology and micropalaeontology, featuring many microfossil groups, and spanning geologic time from Silurian to present. This issue sprang from the session we organized at the GeoCanada 2000 meeting in Calgary and many of the papers developed from those presentations. The volume also features other contributed articles that help to broaden its scope and exemplify the diversity of research in these fields.

As a similar initiative, we recently co-convened a CAP-sponsored Special Session at the Geological Association of Canada/Mineralogical Association of Canada meeting held in May in Saskatoon, Saskatchewan. Called "The Palynology and Micropaleontology of Boundaries", it featured seven excellent papers and a related poster. It was

an extremely interesting and well-attended session, illustrating many approaches to the study of boundaries. We were pleased that Dr Norman MacLeod (Keeper of Palaeontology, Natural History Museum, London, England) gave the keynote presentation. This session provided a fine opportunity to explore some thought-provoking and cutting-edge research.

Over the years, CAP has been very well served by a dedicated and effective Executive. Rob Fensome served as CAP President for 1998-1999. Martin Head undertook to see the Association into the new millennium (2000-2001). Now the gavel has been handed on to Alwynne Beaudoin (2002-2003) who also looks after the Association's website. In 2000, Rolf Mathewes took over as CAP's Representative to IFPS from Gail Chmura (1998-2000). Rolf will serve in this capacity until the next IPC meeting in 2004. Mary Vetter began editing the Newsletter in 1999. This is a very time-consuming and demanding job. Mary has produced a series of excellent Newsletters in the last three years. The newest member of the Executive is Marlow Pellatt who became Secretary/Treasurer at the beginning of 2002. Marlow took over his duties from Francine McCarthy, who had looked after CAP's finances so ably for the last five years. Volunteering for CAP is not a high-profile task. But without the sustained support of a committed Executive, the association cannot function. Certainly, the efforts of the Executive serve to keep CAP the vital and vibrant organization that it is.

CAP welcomes members from all branches of palynology and micropalaeontology who share the objectives of the Association. Full membership details (and a membership form) can be found on our website. CAP is dedicated to the advancement and encouragement of all aspects of palynology in Canada and the promotion of co-operation between palynologists and those engaged in related fields of study. In 1999, CAP's bylaws were changed to eliminate the distinction between full and corresponding members. Now, all members, no matter what their geographic location or affiliation, can fully participate in the activities of the Association, including voting at the Annual General Meeting. We would be happy to welcome new members to our Association.

Alwynne B. Beaudoin
CAP President 2002-2003
abeaudoi@gpu.srv.ualberta.ca
and
Martin J. Head
CAP President 2000-2001
mh300@cus.cam.ac.uk

Pollution of increased urban industrial development is reflected in *Tilia cordata* pollen

The developmental processes of pollen formation can be highly sensitive to the abiotic exposure factors which are particularly prevalent in large cities and industrial centres. This can result in the production of high percentages of deformed pollen from plants growing under such conditions (Bessonova, 1992; Glazunova, 1996; Dzyuba, 1993-1995, 1996, 1998-2001; Kobzar & Kharitonova, 1996; Meyer-Melikjan & Kifishina, 1993). Dzyuba (1993, 1995, 1998) undertook a study of the pollen of *Tilia cordata* from plants growing in the recreational areas of Saint Petersburg. The pollen was collected from herbarium (LE) samples (1892 - 1956) and, more recently, from trees growing in different districts of Saint Petersburg, including Vasileostrovsky Island, generally regarded as having extremely high levels of pollution (Saint-Petersburg Ecological Atlas, 1992). The pollen material was collected in the most abundant flowering period. It was taken from the south-eastern facing parts of the tree crowns, from second order branches. It was collected partly into clean paper-bags, and partly placed into Karnua fixative in glass vials. At the same time herbarium pollen, collected from *Tilia cordata* trees grown in the recreational zone of Saint Petersburg during the years 1892 - 1956, was also studied.

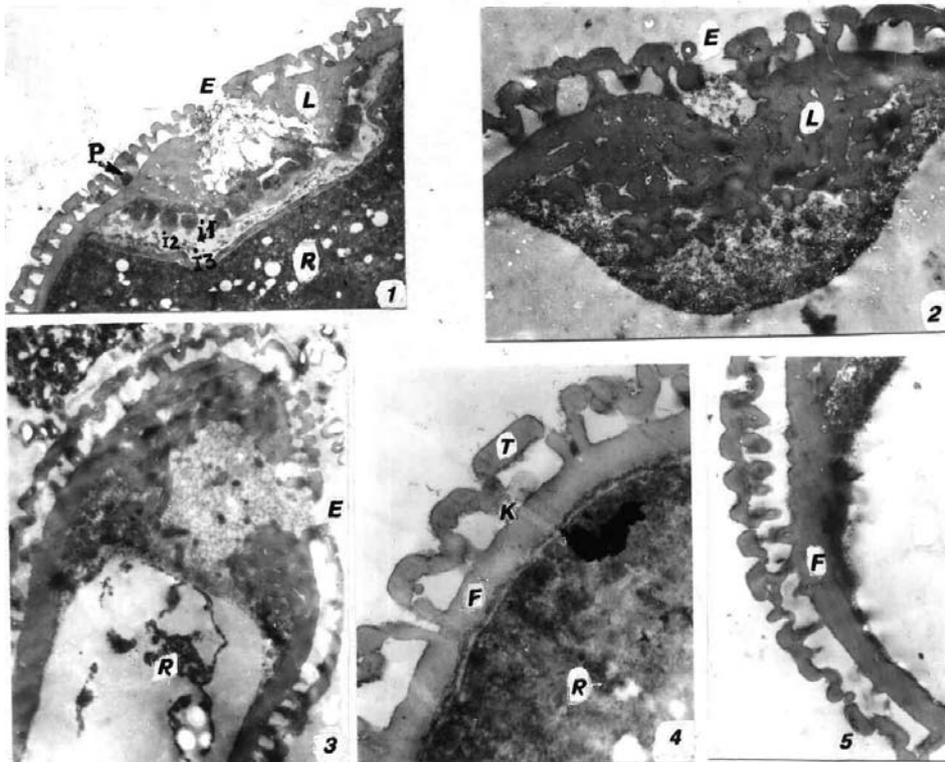
At the end of the 19th - beginning of the 20th Centuries industrial technology was of course much less intensive, than it is now. Therefore, by examining the herbarium pollen of 1892 (sample N2 BIN - Komarov Botanical Institute, Russian Academy of Sciences) and the pollen collected in 1990 - 1998) as well as the representative specimens collected during the first half of the 20th century, we were able to examine, using the same species of *Tilia*, the possible effects that increased industrial pollution might have on pollen after over a century of industrial technological advancement and urbanisation.

Pollen grains that had previously been acetolysed, as well as unacetolysed pollen grains were studied, using light microscopy (LM), scanning electron microscopy (SEM) and transmission electron microscopy (TEM). Results showed that the amount of teratomorphological pollen grains, produced by the *T. cordata* trees in the Saint Petersburg region has increased sharply during last 100 years. Observations made from LM, SEM, and TEM revealed 54 types of pollen grain teratomorphology, which we have sorted into nine main groups of types, these include:

1. Changes in pollen form and size (nanism - gigantism)
2. Asymmetry
3. Changes in aperture number
4. Changes to aperture size
5. Changes to aperture form and structure
6. Changes to sporoderm sculpture and structure (exine thickness, number of layers)

The pollen grains from the 1892 samples appear to have normal protoplasm, aperture development, and a well-developed sporoderm (Figures 1 & 4). While the pollen of the samples collected in 1992 (Figures 2-3, 5) show signs of deformation, and abnormal aperture development. In the samples of 1892 only 6.5% of the pollen grains showed pathological abnormalities, compared with 41.2% - 66.2% of grains in the 1998 samples. This represents an

increase of 6.5 -10 x, depending on where the trees are growing. The amount of abnormal pollen grains is particularly noticeable in the 1990 - 1998 samples. Although we did not have samples at our disposal for the intervening years between 1956 and the 1990's it seems quite obvious that continued intensification of industrial technology, has had a markedly deleterious effect on the quality of the male germ unit in *Tilia* pollen. Germination tests on the pollen, and other fertility tests have yet to be carried out, but the evidence from our work so far suggests that the fertility potential of the pollen may well have been adversely affected.



Pollen ultrathin sections of *Tilia cordata* Mill. (Tiliaceae)

Figure 1. Section through normally developed aperture (pollen collected in St. Petersburg in 1892) x 4 630

Figure 2. Section through abnormal aperture (pollen collected in St. Petersburg in 1992). Note the lamellar layer (L) effectively sealing off the exit route (E) for the potential pollen tube. x 6 400.

Figure 3. Section through abnormal aperture site (pollen collected in St. Petersburg in 1992), where elements of a proliferated tectum have virtually sealed over the aperture, and potential pollen tube exit is only possible via a very reduced side opening (E). x 7000

Figure 4. A well-developed tectum (T), columellar layer (K) and foot layer (F) are seen in this section from pollen collected in St. Petersburg in 1892. x 15 700

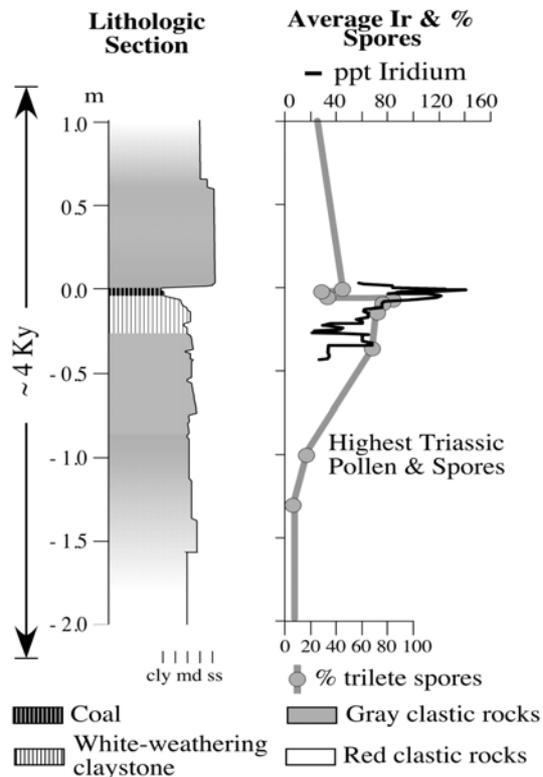
Figure 5. An ultrathin section through the wall of *T. cordata* pollen collected in St. Petersburg in 1992. x 13 800

[**Key:** E - pollen tube exit site; P - pollenkitt; L - lamellar layer; T - tectum; K - columella; F - foot layer; R - protoplasm with organelles]

Olga F. Dzyuba and Valentina F. Tarasevitch
Email: dof@infos.ru

Tracking Dinosaur Dominance

From AAAS Member Services
(<http://www.scienceonline.org/>).



Sixty-five million years ago, at the end of the Cretaceous period, a huge asteroid or comet smashed into Earth, killing off the dinosaurs that had ruled for more than 135 million years.

In the May 17th 2002 edition of *Science* Olsen et al. reported evidence that another explosive impact, at the boundary between the Triassic and Jurassic periods, may actually have triggered the 'rise' of the dinosaurs to dominance 200 million years ago (<http://www.sciencemag.org/cgi/content/short/29/6/5571/1305>). Analysing fossilised reptile footprints and skeletal remains, the group determined that the rise of dinosaurs in eastern North America was indeed abrupt. Those results in turn correlated with two key indicators of impact: high levels of iridium, an element rare on Earth but abundant in asteroids, and identification of a 'fern spike' - an increase in the fossil record of spores from ferns, plants that quickly populate devastated areas. Dramatically, the tracks of earlier Triassic reptiles, that had populated Earth for more than 20 million years, disappeared within a geologically brief 20,000 years after the iridium-fern spike, to be followed by the emergence of characteristic tracks of Jurassic dinosaurs within 10,000 years.

An accompanying news article by R. Kerr (<http://www.sciencemag.org/cgi/content/short/29/6/5571/1215a>) explains the Olsen *et al.* findings, and some of the skepticism they have met.

Restructuring of Palynology in Sheffield

In 1999, the Centre for Palynology in the University of Sheffield was transferred from the department of Earth Sciences to Animal & Plant Sciences. As part of an on-going process of integration of research interests and activities, decisions have now been taken to re-orientate future palynological studies within the research framework of the new parent department. Future studies will endeavour to develop a more specific theme in areas of biodiversity, taxonomy, evolution, biogeography and ecology although these elements are still seen as important components of biostratigraphy.

The impact of the changes will be limited. The newly commissioned Palynology Laboratory will continue to undertake both commercial and research projects. Additional technical support will be available. All staff will remain in post but will transfer to new office accommodation in the Animal & Plant Sciences building. The extensive slide and literature collections are safeguarded and will also transfer to new facilities. All of these changes will be completed by early 2002. The most noticeable change, however, will be re-naming. No longer does Palynology fit the configuration of a 'Centre' in the University's application of the term. In future it will be re-badged as the 'Palynology Research Facility'. Facilities will continue to be available for postgraduate research for Ph.D. and M.Phil. degrees. All enquiries related to postgraduate studies should be directed to:
Postgraduate Admissions Officer (Palynology)
Department of Animal & Plant Sciences
University of Sheffield
Alfred Denny Building
Western Bank
Sheffield S10 2TN

For other enquiries or information contact.

Prof. Bernard Owens 01142 223691
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Palynodata Demo Disk

There is an error concerning the Palynodata Demo Disk in the 24/2 issue of PALYNOS.

Should read:

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ANNOUNCEMENTS

WE NEED YOUR INPUT AND HELP NOW

In the compilation of the new 'World Directory of Palynologists'

With reference to the article which appeared on pp. 7-8 of PALYNOS 24(1): June 2001, we must continue the work towards the production of an update of the World Directory of Palynologists in time for the 11 IPC in Granada in 2004. Some of you, we know, are already working on this. Others, very efficiently, update and circulate membership lists every year. We now have annual membership lists from about 1/3 of our member societies. If your society has not yet responded and sent in a membership list please get moving - it is the responsibility of your IFPS Councilor to see this is done. The quality and value of the Directory will be seriously impaired if we do not have full and up to date information. Once you have made an electronic list it will be very easy to update it for the final copy deadline.

Please could you email me to let me know how well ahead, or otherwise, you are with the task of producing a membership list for your members, with their research subject areas categorised in the World Directory format (see 1996 edition for format). I will keep a record of your replies to this message, and send out an update and reminder within the next month.

I look forward to hearing from YOU!

Madeline Harley Secretary/Treasurer, IFPS Phone: +44(0) 020 8332 5266; Fax: +44(0) 020 8332 527; email: m.harley@rbgkew.org.uk

FUTURE MEETINGS

6th European Bee Conference

The 6th European Bee Conference on, 'Bees and Movement', being held in July in Cardiff. The official deadline for registration was May 1st.

The conference will focus on bee movement, and its consequences for pollination, populations and biodiversity:

Movement of bees includes:

- Natural movement including foraging, swarming and migration
- Movement by man including migratory beekeeping, introductions and ecological impacts, regulation of movement

The conference will look at the consequences of such movement on:

- The spread and control of pests and diseases
- The spread of exotic or undesirable genotypes
- Strengthening or threatening biodiversity
- The genetics of bees and their predators
- Forage resources/competition/pollination
- Pollen flow and resource partitioning

For more details visit <http://www.ibra.org.uk/> and click on 'IBRA conferences', or contact:

Juliet Osborne
Secretary to ICPBR
Plant and Invertebrate Ecology Division,
IACR-Rothamsted,
Herts AL5 2JQ

email: juliet.osborne@bbsrc.ac.uk

Tropical Beekeeping Research and Development for Pollination and Conservation

This symposium, organised by the Centro de Investigaciones Apícolas Tropicales of the National University of Costa Rica and the Bee Research Department of Utrecht University (The Netherlands). Under auspices of the APIMONDIA Standing Commission for Pollination and Bee Flora, will be held from ~~Sunday 16 to Wednesday 19 February 2003~~. **Rescheduled ca. Feb. 2-25, 2004** by Luis-Alejandro Sanchez lsanchez@una.ac.cr

The Symposium will offer an excellent opportunity for participants to hear about the latest developments relating to the use of tropical stingless bees for pollination, and the role bees play in conservation in Costa Rica.

Costa Rica plays a leading role in the management of tropical resources, and has a world renowned programme for the conservation and sustainable management of tropical forests. The development of beekeeping and related bee research is strongly linked to this national initiative. The Centro de Investigaciones Apícolas Tropicales (CINAT) of the Universidad Nacional has been developing its beekeeping and bee research programme in collaboration with Utrecht

University in the Netherlands. It plays a central role in bee-related research and training in Costa Rica, and the Central American region. CINAT hosted the Sixth IBRA Conference for Tropical Bees and Beekeeping in 1996.

The programme for the symposium consists of two major topics:

- A. The use of bees for pollination of tropical crops
- B. The role of bees and beekeeping in the conservation of tropical ecosystems

PROGRAMME AND LANGUAGE

Participants are expected to arrive on Sunday evening 16th February, and the Symposium will close on Wednesday evening, 17th February.

The programme on Monday and Tuesday will consist mainly of presentations by invited speakers. All lectures will be in English. English will be the official language; simultaneous translation from English into Spanish will be provided.

Poster presentations are welcomed.

VENUE AND FACILITIES

The venue for this symposium will be the congress facilities of Hotel Irazu, San José, Costa Rica. A good number of rooms have been reserved in this hotel at a very special rate.

SUBSCRIPTION RATE

Paid before 1 December 2002: \$US275.00

Paid after that date: \$US325.00

This rate includes:

- Inscription and full participation in the symposium
- Welcome cocktail Sunday evening
- Cultural show Monday evening
- Translation (English > Spanish)
- All coffee breaks
- 2 lunches (Monday, Tuesday)
- Excursion on Wednesday
- All texts on CD-ROM

The symposium will finish with a farewell dinner on Wednesday evening, the cost of the dinner is not included in the subscription rate.

HOTEL ACCOMODATION

The hotel Irazu (Best Western) offers excellent rooms for \$US56.00 (plus 16.3% taxes) per room per day (double room, 3rd and 4th persons are free). This rate includes: breakfast, airport transportation, free drinks from the hotel bar daily between 1700-1800 hrs, free internet service and local calls. More information can be found in http://www.bestwesterncostarica.com/locations_irazu.html

EXCURSION

(Technical field visits) Wednesday 19th February (included in inscription rate)

Programme of two options for day-tours:

1. Pollination in greenhouses by stingless bees and honey bees:

Cartago, pollination in greenhouses, Botanical garden Lancaster (world famous orchid collection) Irazu volcano.

2. Pollination of melon by honey bees:

Visit to melon growing company near Orotina city, Carara National Park for spotting of crocodiles, monkeys and macaws, visit to nearby Jaco beach.

Looking forward to meeting you in Costa Rica during the APIMONDIA symposium on *Tropical Beekeeping: Research and Development for Pollination and Conservation*

ORGANIZING COMMITTEE

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All-Russian Palynological Conference: Aspects of Palynological Methodology

The 10th Russian Palynological Conference organised by the Russian Palynological Commission (RPC) will take place at the Institute of Geology and Development of Fossil Fuels (IGiRGI), Moscow, Russia, from 14-18 October 2002.

The main theme of this Conference is methodology in palynology, and the aim is to have wide discussion on the application and problems encountered using modern palynological techniques. The Scientific Programme includes the following topics:

1. Morphological methods in sporoderm ultrastructural research
2. Methodological principles for regional and inter-regional correlation of palynological data
3. The methodology of detailing local and regional palynostratigraphic schemes

4. Complexities of using different palynological methods for stratigraphy
5. Biostratigraphy of organic-walled microphytoplankton, diatoms and algae
6. New methods in palynology that improve information criteria
7. Recent computer methods for treating palynological materials
8. Revised methods for the technical treatment of different rock types, and the technology for optimal extraction of materials for palynological analysis

The first circular was sent early in 2002. We invite all our Russian and international colleagues to take part in the 10th Russian Palynological Conference.

Contact addresses:

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Or email Natalia E. Zavalova: 10vpk@rambler.ru
for further information and registration details.

NEW BOOKS

Extinction, Evolution and the End of Man

M.C. Boulter, 2002. Fourth Estate, London. ISBN 1-84115-695-7 (HB). Price : £15.99.

Sixty five million years ago the dinosaurs were destroyed in a mass extinction that could not have been predicted. Out of the devastation new life developed, and the world regained its natural equilibrium - until now. Scientists, employing radically new perspectives on the science of life, are beginning to uncover signs of a similar event on the horizon - the end of man.

Through the story of the last 65 million years, Michael Boulter reveals extraordinary new insights that scientists are only now beginning to understand about the past; the rise and fall of species and the nature of life. Does evolution follow a pattern? Does biology follow mathematical principles? Is the environment a self-organising system that seeks harmony through extinction? Are humans, through their own selfishness, accelerating their own end?

Extinction is an immaculately researched introduction into the new developments in the science of life, as well as a chilling account of the effects that humans have had on the planet. The world will adapt and survive, humanity will not.

(taken from the dust jacket of the book).

Atlas of Pollen and Spores of the Polish Neogene Vol 1 – spores

L. Stuchlik, M. Ziembinska-Tworzydło, A. Kohlman-Adamska, I. Grabowska, H. Wazynska, B. Slodkowska and A. Sadowska. 2001. 158 pages, 4 black and white figures and 42 plates.

Price: \$US40.00 (p&p included). ISBN 83-85444-79-3. Publisher: W. Safer, Institute of Botany, Polish Academy of Sciences, Krakow, Poland.

To order: IB Publisher, W. Safer Institute of Botany, Polish Academy of Sciences, Lubicz, 46, PL-31-512 Krakow, Poland
Payment by remittance to the following bank account: BANK PREZEMYSLOWO-HANDLOWY IV O/M Krakow n° 10601389-380000021987

Proceedings of the Fifth European Palaeobotanical and Palynological Conference June 26-30, 1998, Krakow

L. Stuchlik (Ed.), 1999. Acta Palaeobotanica – Supplementum n° 2, Krakow. W. Safer, Institute of Botany, Polish Academy of Sciences, Krakow, Poland. 661 pages. Price: \$US48.00. ISSN: 0001-6594.

Order from: IB Publisher, W. Safer Institute of Botany, Polish Academy of Sciences, Lubicz, 46, PL-31-512 Krakow, Poland.

Payment by remittance to the following bank account: BANK PREZEMYSLOWO-HANDLOWY IV O/M Krakow n° 10601389-380000021987

Atlas of Palynomorphs of the Tunguska Syneclise Permian-Triassic Volcanogenous Formation

V.V. Krugovykh. 2001. 232 pages including 68 plates. 205x290. Paperback. Price: \$US50.00 [In Russian with English abstract].

Postage (airmail): \$US 25.00

Introduction: This monograph, summarises Permian-Early Triassic palynological data from the volcanogenous formation of the Tunguska syneclise (the Siberian Platform) that have been published in Russia prior to 1995.

There are three chapters:

Chapter one provides a brief review of palynological studies from the volcanogenous formation of the Siberian Platform from 1960 onwards.

Chapter two considers methodological aspects of palynological research, including problems of re-working, and the formation of palynological spectra during the processes of sedimentation. A consecutive assemblage sequence for the Permian-Triassic volcanogenous formation is described.

Chapter three provides the taxonomic system, the distribution of the main taxa in the palynofloras of the volcanogenous Permian-Triassic sections and the pollen and spore descriptions. The total number of palynological taxa is about 112 genera and 347 species, including 11 new species, 13 new combinations and the 43 predominant species of value for stratification and correlation of polyfacial deposits over widespread domains. The taxonomic system for pollen and spores described in the text follows mainly R. Potonie and G. Kremp (1956-1970) with some revisions based on Russian materials.

For mail order contact: Valentina V. Krugovykh
St. Gladkova h. 25 ap. 65
Krasnoyarsk, 660016
Russia

Or, to order by email: kgs@online.ru

Delivery: your book(s) will be mailed as soon as we receive your order. Payment: Bank transfer.

Flora and Dinosaurs at the Cretaceous-Paleogene Boundary of Zeya-Bureya

E.V. Bugdaeva (Editor). 2001, 162 pp. (including illustrations). 35 text-figs. 13 plates. Publisher: Dalnauka, Vladivostok. ISBN 5-8044-0133-5. Price \$US 40.00

Institute of Biology and Pedology FEBRAS, 159 Prospekt 100-letiya Vladivostok, 690022; Division of Regional Geology and Hydrogeology FEBRAS, 239 Zeyskaya st., Blagoveshchensk, 675 000; Amur Integrated Research Institute FEBRAS, 1 Relochny Lane, Blagoveshchensk, 675 000.

Palaeobotanical and geological data relevant to the interpretive problems of the Cretaceous-Paleogene boundary beds of the Amur region (Zeya-Bureya basin) are summarised. The paleoenvironments, climatic conditions, and biota diversity dynamics of

the Mesozoic-Cenozoic boundary are analysed. The plant-bearing Upper Cretaceous and Paleogene deposits of the Russian Far East are correlated. The problem of plant and dinosaur extinction during the Cretaceous-Paleogene crisis is discussed.

The book is intended for specialists in geology, stratigraphy, palaeontology, evolutionary biology, palaeoclimatology, and palaeoecology.

MEETING PROCEEDINGS

The Micropalaeontological Society, Palynology Group Meeting, 13th March 2002

The Palynology Group of The Micropalaeontological Society held its annual meeting at the Natural History Museum, London, on Wednesday, 13th March. Susanne Feist-Burkhardt and colleagues hosted this successful event that was attended by more than forty members. Abstracts are available on the Palynology Group page of the TMS website, www.tmsoc.org

The meeting began with a guided tour showing the Museum's palynological facilities (Feist-Burkhardt, Henderson, Williams, Chitolie & Jones), including the collections, palynological laboratory, microscopes, John Williams library and reference collection, and the Confocal Laser Scanning Microscopy (CLSM) equipment. Tim Potter chaired a Cenozoic and Mesozoic lecture session. This began with invited speaker Madeline Harley who gave an overview of palynological work on modern pollen at Kew Gardens during the past thirty years. Fabienne Marret (Marret, Scourse, Versteegh & Jansen) discussed implications from marine and terrestrial palynomorph studies for climate changes in the Congo Basin and adjacent ocean during the last 30,000 years. Suzanne Leroy (Leroy & Marret) reported palynological analyses of Late glacial and Holocene sediments from South and Central Caspian Sea basins, including new dinoflagellate cyst species from brackish water deposits. Polina Pavlishina (Sofia University), who was a research guest at the Museum during March, gave an overview of her studies on the Turonian (Late Cretaceous) sediments in Bulgaria. She discussed the biostratigraphy of dinoflagellate cysts and Normapolles pollen. Jim Riding summarised his work comparing the Jurassic palynomorph record in the Northern and Southern hemispheres and its implications for wider scale correlations. Geoff Warrington reviewed the palynology of the Late Triassic and earliest Jurassic succession on the Dorset-East Devon Coast World Heritage Site.

Duncan McLean chaired a Palaeozoic lecture session. John Marshall (Marshall & Hemsley) documented a functionally bisexual seed-megaspore from mid Devonian deposits in East Greenland and discussed its significance in understanding the origin of seed plants. Dave Gelsthorpe, who spoke about the early Silurian Ireviken mass extinction event at the 2001 Palynology Group meeting, gave an update of his research on microplankton changes across the interval. Gary Mullins (Mullins, Aldridge & Siveter) discussed acritarch and prasinophyte recurrent assemblages, biofacies and the palaeoenvironmental interpretation of the lower Ludlow Series (Silurian) in the Welsh Basin. Tim Potter presented photographs of remarkably well-preserved Early Cambrian acritarchs from the Hollybush Sandstone, Malvern Hills, England, and discussed detailed acritarch morphology and the occurrence of two distinct acritarch assemblages in sandstone and shale lithologies. A cheese and wine reception followed, sponsored by TMS.

The next annual meeting of the Palynology Group will be held at Leicester University in Spring 2003. Gary Mullins, the organiser, will send further information closer to the event.

Paul Dodsworth, TMS Palynology Group Secretary (Dodsworth@ichron.com), & Susanne Feist-Burkhardt, TMS Palynology Group Chair (S.Feist-Burkhardt@nhm.ac.uk).

THESES

Modern and Holocene pollen assemblages from Arctic ice caps

Jocelyne Bourgeois. PhD. Thesis. (2000). Department of Geography, University of Ottawa, Canada.

Records of pollen deposition on arctic ice caps are used to infer paleoenvironments of the Holocene and atmospheric circulation patterns in the Arctic. As part of this study, several snow samples were collected over a broad area, over the course of several years, to investigate modern pollen deposition patterns in the Arctic. Pollen assemblages recovered from arctic snow are diverse and consist of tundra and forest types. The results show that pollen percentages and concentrations are related to the density of the regional vegetation and to the distance of the source in more productive regions. In addition, the long-distance transport of tree and shrub pollen permits the identification of regional patterns that might be used to define air mass trajectories in the Arctic. In a more detailed analysis, the seasonal and annual variations in

pollen deposition in snow layers were studied on four ice caps, including one in the Russian Arctic. It is shown that the pollen succession in the annual snow layers is related to the flowering periods of arctic and southern plants. The amount of pollen reaching the ice caps varies from year to year. Furthermore, the variability in the number of tree and shrub pollen decreases with increasing distance to the treeline. The last section of this study is an interpretation of a Holocene record of pollen distribution in an ice core from the Agassiz Ice Cap, Ellesmere Island. Pollen concentrations, particularly those of tree pollen were highest in the early Holocene, decreased in the mid-Holocene and changed relatively rapidly after ca 3500 years ago. In the early Holocene, the pollen profile parallels the $\delta^{18}\text{O}$ and ice-melt records from the same ice core indicating that the warmest summer temperatures occurred very early in the Holocene. The high concentration of tree pollen in the early Holocene, when large parts of Canada were still ice-covered and forest zones more limited and generally farther away, implies that atmospheric circulation was stronger than at present. The data may be of significance to comprehensive studies of atmospheric dynamics and vegetation changes.

Late Quaternary paleoclimates and biogeography of North America

Michael Charles Sawada. PhD. Thesis. (2001). Department of Geography, University of Ottawa, Canada.

Pollen, spores and dinoflagellate cysts are used with the modern analogue technique (MAT) to provide paleoclimate reconstructions for terrestrial and marine environments in northeastern North America. Multivariate analysis of marine and nearby terrestrial pollen sequences from Hudson Bay, Labrador and the St Lawrence, differentiate tundra, boreal and deciduous forest assemblages in time and space. These three regions had differing climate histories with respect to deglaciation and air mass boundaries. Prior to 6000 ^{14}C yr BP, cooler temperatures reconstructed along the Labrador margins agree with climate simulations indicating a persistent anticyclone over the Quebec-Labrador ice sheet. A late Holocene cooling at forest-tundra sites suggests a recent southern movement in the mean position of the polar front.

The degree to which those critical thresholds of dissimilarity, that are used to identify non-analogue pollen assemblages, are due to limitations of the modern pollen database or critical decisions within the MAT are explored by means of stochastic simulation, spatial statistics and graphical techniques. Critical thresholds of SQD, as derived by the expected value under randomisation, become greater as the number of taxa in the pollen set

increases. Larger pollen sets, with continentally infrequent but regionally abundant taxa, better distinguish between continental vegetation zones. Global and local spatial autocorrelation within climate anomalies indicate where the modern sample network induces biases in the climate reconstruction using the MAT.

The spatial scale of terrestrial climate or vegetation reconstruction from pollen in lake-sediments is investigated through the study of pollen source area in southern Quebec. Despite the different regional vegetation, estimated pollen source areas and relevant pollen productivity for *Pinus*, *Picea*, *Abies*, *Fagus*, *Quercus* and *Tsuga* are consistent with studies from Michigan, Wisconsin and Sweden. These estimates are robust with respect to various plant abundance distance-weighting schemes and imply that the same inferences can be made regarding plant abundance from pollen throughout a lake-derived fossil pollen sequence. Stochastic simulations illustrate that the definition of relevant pollen source area requires consistent within-site vegetation heterogeneity within a network of pollen sites.

Under-utilised proxy-climate data from wetland taxa are demonstrated to contain climate signals at the continental scale and have the potential to further our climate and biogeographic picture of North America over the past 21,000 years. Pollen and spores from modern wetland taxa conform to their geographic ranges and allow interpretations of past range changes. The climatic tolerances that govern their geographic distributions are used to interpret past range changes in climatic terms. *Sphagnum* spore distributions suggest major peatland developments after 9 ka and 5 ka. *Sphagnum*, *Potamogeton*, *Isoetes*, *Myriophyllum*, *Typha/Sparganium* and *Menyanthes trifoliata* were in Alaska during the last glacial maximum (LGM) and moved into the ice-free corridor by 13 ka. Since the LGM, four migration routes for aquatic taxa are identified in response to the climate changes of the late-Quaternary.

Vegetation history and climate records of Colombian lowland areas: rainforest, savanna and intermontane ecosystems.

Michael Wille. PhD. Thesis (November 2001), University of Amsterdam.

This thesis focus on the history and the dynamic aspects of tropical lowland ecosystems in Colombia. During 1996 sediment cores were collected in the frame work of the post-doc project of Hermann Behling (now at Bremen University). After an introduction to the study, **Chapter 2** presents the 610-cm core El Caimito recovered in the rain forest along the Pacific (Chocó). Pollen, diatoms and grain size analysis of this 3900 year

long record was carried out. From 3900-2700 cal BP the site was under influence of a fluvial system. When the lake was isolated clays were repeatedly interrupted by river pulses that left sandy and silty horizons in the record. Each pulse damaged the local mature rain forest and provoked expansion of *Cecropia*-dominated pioneer forest. After 1430 cal BP river impact gradually diminished and the diversity of fossil pollen taxa increased. Migrations of the mangrove belt reflect a moving coastline.

In **Chapter 3** an integration of floristic inventory studies of forest types, pollen analysis and numerical analysis of pollen counts were carried out with the 3 existing pollen records from Chocó (sites El Caimito, Piusbi and Jotaordó). Only minor vegetational change is evidenced. Site Piusbi contains the highest amount of vascular plant pollen taxa probably related to its position close to upland forest.

In **Chapter 4** the pollen record of the 5-m core Timbio (1750 m alt.) is presented. The periods from 27000-9200 BP and the last 2100 years are reflected. There is a succession from *Podocarpus-Weinmannia* forest, via *Hedyosmum*-dominated forest to *Ilex-Myrica* forest indicating a progressive decrease of temperature during the last glacial to maximally 5°-7.5°C at the last glacial maximum (LGM). Human impact (deforestation) is evident since 2100 BP. The observed LGM temperature depression of 6.5°C is between the estimates for >2600 m (8°C) and sea-level (2.5-6°C) suggesting steeper glacial lapse rates.

In **Chapter 5** pollen records from eight sites in the lower montane forest belt were studied. Changes of the altitudinal position of the lower/upper montane forest belt transition were used to estimate temperature change for the last 50 kyr. A LGM temperature drop of 6°-7°C at 1700 m has been inferred suggesting a lapse rate of 0.76°C/100 m, which is significantly steeper than today (c. 0.6°C/100 m). This is an important observation as it may counterbalance the potential effect on paleotemperature estimates of glacial lower atmospheric *p*CO₂ on the altitudinal position of the upper forest line.

In **chapter 6** a 10-m core from savanna lake Margaritas (290 m alt.), located at the transition from savanna to Amazonian rain forest, is analysed. Competition between open savanna, gallery forest along the drainage system, and closed rain forest depends on annual rainfall and the length of the dry season. 42 AMS ¹⁴C dates provide time control for the period from 9200 BC to 1650 AD. The general development of savanna grassland to forest during the Holocene and its synchronicity with a decreasing difference in seasonality suggests that the precession cycle might have played an important role in climate forcing. For the time interval 4300-2100 cal BC a precise time control was obtained by ¹⁴C wiggle match dating. Δ¹⁴C fluctuations reflect

changes of solar activity, which might be related to climate change. The results from ^{14}C wiggle match dating and a wiggle-match between pollen and $\Delta^{14}\text{C}$ record do not unambiguously indicate that changes in solar activity triggered changes of climate and vegetation.

Pollen records of tidal-marsh subsidence from the 1700 earthquake at Tofino, British Columbia.

Jonathan F. Hughes. PhD Thesis, Department of Biological Sciences, Simon Fraser University, Burnaby, B.C. Canada

Pollen are used to reconstruct sea level and vegetation changes associated with the 1700 Cascadia earthquake at tidal marshes near Tofino, British Columbia. Deposits beneath marshes include a buried peat capped by tsunami deposited sand. A broad platform of sand at Jensen's Bay includes six vegetation zones determined with two-way indicator-species analysis (TWINSPAN): muddy low (2.7-3.3 m), sandy low (3.0-3.5 m), middle (2.9-3.6 m), high (3.4-4.0 m), forest-edge transition (3.9-4.1 m), and alder-sedge carr (3.9-4.3 m). Marshes at English Cove lack abundant sand, fringe the forest edge in narrow strips, and include low (2.0-2.9 m), middle (2.8-3.5 m), high (3.2-3.9 m), and forest-edge transition (3.7-4.2 m). Pollen assemblages collected from surface sediments at English Cove reflect vegetation variation along transects from mudflats to forest edge. Surface pollen define five marsh zones: mudflat and low (1.7-2.7 m), low (2.6-3.0 m), middle (3.3-3.6 m), high (3.6-3.9 m), and forest-edge transition (4.0-4.1 m). Euclidean distance is low (≤ 0.2) for pollen samples collected from the same zone and high (> 0.2) for samples from different zones. High marsh pollen such as *Achillea*-type, Poaceae, and *Potentilla*-type have narrow elevation tolerances (< 0.5 m) and high association indices (> 0.5), which shows they are good proxy indicators of relative sea level and vegetation. Paleoelevations of fossil pollen assemblages at English Cove determined with weighted averaging (prediction error = 0.3, $r^2 = 0.85$) accommodate estimates of coseismic subsidence of 0.65 ± 0.3 , 0.69 ± 0.3 , and 0.50 ± 0.3 m (average = 0.6 ± 0.3 m). Euclidean distance between surface and pollen samples shows that fossil pollen assemblages of the buried peat have good analogues in surface pollen but those that overlie the tsunami sand do not.

Sandy low and middle marshes at Jensen's Bay are a modern analogue for vegetation colonization of tsunami sand. TWINSPAN and detrended correspondence analysis (DCA) distinguish sandy low and muddy low marsh communities, which indicates that sand influences species composition.

TWINSPAN and DCA show that pollen from the sandy marsh surface is similar to fossil spectra from sediments that immediately overlie the buried tsunami deposits. The average elevation of plants tends to be higher (3 to 19 cm) when the plants are growing in sand compared with mud, but overlapping standard deviations suggest that elevations are not significantly different. *Carex lyngbyei* (40 cm) is exceptional because it colonizes low marsh on mud and is restricted to middle marsh or higher elevations on sand.

Elevation and inundation explain more variance in species cover-abundance at English Cove (19%) than at Jensen's Bay (16%). Large axis-1 eigenvalues determined with DCA for both sites suggest that there is a dominant environmental gradient, interpreted here to be the complex of environmental gradients correlated with elevation and inundation. Constrained ordination indicates that elevation or inundation explains about one-fifth of variation in species distributions. Low marsh and middle marsh are more responsive to elevation and inundation at both sites. The nonlinear distribution of inundation results in more prediction error than elevation.

Good agreement between estimates of coseismic subsidence with pollen and foraminifera supports the use of these biological proxy indicators of relative sea level. Correlation between vegetation and surface pollen distributions provides ecological support for sea-level reconstruction by improving identification and interpretation of fossil pollen. Pollen are useful for estimating past sea-levels because the vertical distribution of salt marsh plants provides distinct zones, pollen in surface sediments reflect the plants growing nearby, and taphonomic distortion of pollen records is minimal.

IN MEMORIAM

Professor E. M. van Zinderen Bakker



We are deeply saddened by the death of the 'father' of palynology in South Africa, Professor E. M. van Zinderen Bakker, who was President of the South African Archaeological Society from 1977-1979. He died in Somerset West on 19 March 2002, within a month of his 95th birthday. After suffering two strokes in five years, he bore the progressive deterioration of his health with great courage.

Eduard Meine van Zinderen Bakker was born in Friesland, Netherlands, on 15 April 1907. After graduating with a PhD in Botany at the University of Amsterdam, he taught Biology at the Grammar School and Royal College in Apeldoorn. His inspiration, according to recent letters from old students in Holland, directed the course of many lives in various fields of science and medicine.

During the German occupation of the Netherlands during World War II, he worked for the underground resistance movement at the risk of his life, while continuing with ecological research. In 1947 he emigrated at the age of 40 with his wife and two sons to South Africa as he had always been fascinated by the mysteries of the ancient continent of Africa. He nevertheless retained his ties with his homeland and served as Honorary Consul in South Africa for the Netherlands for 20 years. For this service he was appointed by the Queen as Officer in the Netherlands Order of Oranje-Nassau.

Eduard was initially appointed as lecturer and later as Professor of Botany at the University of the Orange Free State in Bloemfontein from 1947 to 1972. In recognition of his illustrious career, respected both nationally and internationally, the University honoured him in his 'retirement' by establishing the Institute for Environmental Sciences with him as Director. He held this position until 1976 with a staff of dedicated national and international scientists. From 1977-1988 he served as a Research Officer at the Institute until he retired in earnest at the age of 81. During his period at the Institute he provided an international forum for research results with the establishment of the journal *Palaeoecology of Africa* in 1966 which he edited in collaboration with Dr J. Coetzee and other guest editors for 20 years.

One of his main interests was the application of fossil pollen analysis (palynology) to the study of the Quaternary in Africa, stressing global temperature variations as the primary cause of profound palaeoenvironmental changes. He introduced the discipline to Southern Africa as early as 1951 in an article published in the *South African Archaeological Bulletin* in which he described palynology as "South Africa's latest archaeological weapon". He emphasised that there was indeed a treasure trove of palynological information to be gleaned from deposits that would contribute to a broader knowledge of palaeoenvironments. In this connection he worked at several sites in southern and eastern Africa with the late J. Desmond Clark, later extending his interest to the Sahara and Namib deserts and to the Subantarctic Islands of Marion and Prince Edward. This extensive field of research was funded by the CSIR through a Palynology Unit. In 1965 he

initiated the first major biological expedition to the Subantarctic Islands and under his guidance scientists from various countries studied the palynology, glacial geology, volcanology, limnology, mineral cycling and bioenergetics. The results were published in a monograph in 1971 with the co-operation of 35 specialists.

Professor van Zinderen Bakker served as Chairperson of the International Group of Specialists in the Antarctic (SCAR) and as President of the South African Society for Quaternary Research (SASQUA). He was a Fellow of the Royal Society of South Africa, and an Honorary member of INQUA, the South African Association of Botanists and the Deutsche Quatärvereinigung. For his outstanding career he received a DSc Honoris Causa from the University of the Orange Free State, the South African Gold Medal for Antarctic Research and for Botany, the Senior Captain Scott Medal for Biology, and the Havenga Prize for Biology from the Suid-Afrikaanse Akademie vir Wetenskap en Kuns.

Eduard van Zinderen Bakker distinguished himself as a dynamic personality with high principles, vision and an intense interest in scientific explanations for the intricacies of biological problems. Some months before he died he expressed his philosophy as follows:

"The most valuable legacy we can leave to our fellow humans, young and old, is the overwhelming awareness that we are surrounded by countless wonders that do not ask for pseudo-explanations, but can only be answered in the manner that befits the marvels of nature, namely with reverence and with a huge question-mark".

We echo the sentiments of Professor Hugues Faure of Marseilles who sent the following tribute: *"INQUA loses one of its most eminent Honorary Members, and Africa its first palynologist and a great Quaternary scientist and palaeoecologist".*

J.A. Coetzee

Professor Knut Fægri



Professor Knut Fægri died on the 10th of December, 2001, he was 92. Characteristically he was still

professionally active in the Department of Botany, University of Bergen, until a few weeks before his death.

Prof. Faegri is known to have published more than 600 scientific titles. A list of known titles is being prepared for publication in the Norwegian botanical journal *Blyttia* (Moe, 2002). Apart from his monumental scientific reputation, he was also a master of popularisation, and a gifted lecturer. Outside academia, he will be remembered in the public arena as a person who used his sharp pen and tongue in popularising science for the general public, through newspapers, popular journals, radio, and TV. He was the editor of the popular Norwegian scientific magazine *Naturen* for 30 years, and his books, particularly on botanical topics and traditional food themes, are found today in many Norwegian homes.

Knut Fægri was born on July 17th, 1909, in Bergen, where he stayed all his life. He obtained his PhD in 1934, at the age of 24 on the topic: '*Glacier changes and associated vegetation successions on the end-moraines of the Jostedal glacier, Sogn, western Norway*'. In 1946, after 12 years as a freelance botanist at the Bergens Museum (since 1948 the University of Bergen), he became a professor in botany. His early work covered various botanical fields such as floristics, plant geography and pollination ecology.

During the early 1930's, in Sweden, Lennart von Post had announced courses in pollen analysis. Faegri attended these courses and they evidently changed Fægri's interests and future research direction. A number of bright young scientists gathered at von Post's courses. Surrounding the grand master Lennart von Post in the bogs of southern Sweden resulted not only in life-lasting friendships but also debates, debates that were to split Scandinavian palynology into different schools. Following his doctoral thesis, Fægri initiated studies on post-glacial successions and late and postglacial vegetation history in the south-westernmost corner of Norway, at Jæren (close to the city of Stavanger). These studies were the start of modern pollen analysis and palaeoecology. His pioneer work included the recognition of the Brøndmyra interstadial, later also found in Denmark where it became known as the Bølling interstadial.

Faegri's close friendship with the Danish Johannes Iversen was initiated during the von Post pollen analysis courses, and the friendship that developed, resulted in the first edition of the well-known Fægri & Iversen '*Text-book of Pollen Analysis*'. With his other interest in pollination ecology, Fægri also saw the need for another useful textbook; and

'Principles of Pollination Ecology' was first published, with Leendert van der Pijl, in 1966.

For a long time Faegri served as General Secretary of IUBS (International Union of Biological Sciences), he was also an active member of a number of committees involved with botanical nomenclature.

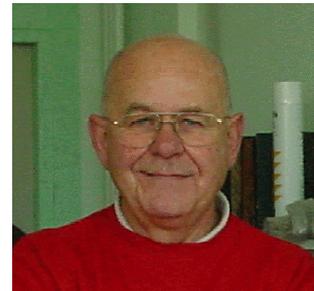
Prof. Knut Fægri will be long remembered as a brilliant scientist. He was honoured by many scientific organisations, associations and institutions in Norway as well as abroad. First in Oslo, in 1980, by the 'Commander of The King's St. Olav's Order', and perhaps most recently at the 16th Botanical Congress in St Louis with the 'Millennium Botanist Medal'.

[Distilled from a full obituary to be published in Grana by Dagfinn Moe, Peter Emil Kaland and Knut Krzywinski - Museum of Botany/ Department of Botany, University of Bergen, Allegaten 41, N-5007 Bergen, Norway.]

Reference

Moe, D. 2002. Bibliographica Faegriana. *Blyttia* 60(1): 4-13.

Dr Stanislas Loboziak



Dr Stan Loboziak died suddenly on 1st June 2002, only months after retiring from the Université des Sciences et Technologies de Lille. Stan was a widely respected Upper Palaeozoic palynostratigrapher who initially studied the Upper Carboniferous in France but gained international acclaim for his detailed studies of the entire Devonian and Carboniferous in Europe, North Africa, the Middle East and South America. During his long career in the Lille laboratory he published in excess of 120 papers.

Stan Loboziak was born on the 7th February 1937 in Carvin in the north of France to Polish parents. The son of a coal miner who died during the Second World War, Stan had a difficult childhood in the post-war years but became nationalised as a French citizen in 1950, and was awarded scholarship grants as "pupille de la nation" to support his education. Being brought up in a coal mining region, it was

probably not surprising that one of Stan's first scientific interests was in geology. In 1960, he enrolled at the Université de Lille in the laboratory of the famous palaeobotanist, Paul Corsin who suggested that he investigate Westphalian palynology. Stan obtained an MSc (Doctorat de 3ème cycle) in 1962 and a PhD (Doctorat d'Etat des Sciences naturelles) in 1969 with a thesis on the miospores and megaspores of the Westphalian of northern France. He was continuously employed from 1962 in the Lille laboratory as a researcher of the French National Centre of Scientific Research (CNRS), working alongside Jean Pierre Laveine and Robert Coquel.

Loboziak's contributions to the Westphalian palynology of northern France were numerous in the 1960's including the recognition for the first time of Westphalian D sediments in the northern France coal basins. He later investigated the palynostratigraphy of other French coal basins before going onto work on sequences in Spain, Turkey, USA and Russia. He collaborated widely with palynologists in other laboratories in Europe and co-ordinated the activities of Westphalian palynologists within the CIMP Stratigraphical Palynology working group. In the 1970's Stan began a period of stratigraphical diversification with studies of the Lower Carboniferous sequences in Niger and Libya and the Devonian – Carboniferous transition in Canada and Iran. In the 1980's he began a long and fruitful association with his close friend, Maurice StreeL, on the Middle and Late Devonian in the type sections of the Ardenne – Rhine areas of Belgium and Germany which lead to the landmark publication in 1987 of a new palynozonation for the sequence, integrated with all available faunal biostratigraphical evidence. With this foundation he went on to study sequences in Algeria, Tunisia and Libya and latterly in Saudi Arabia and Brazil. In the early 1990's he commenced a long and fruitful collaboration with José Henrique Melo and other exploration staff of Petrobras in Brazil which resulted in a major revision of the Devonian and Lower Carboniferous sequences in that country. The detailed results of this major study were submitted for publication in the Review of Palaeobotany and Palynology at the end of 2001.

The stratigraphical and geographical range of Stan Loboziak's Devonian and Lower Carboniferous studies resulted in his recognition as a true expert on the links between Euramerica and Gondwanan miospore stratigraphy. He was a methodical investigator who would never take a short cut to risk scientific accuracy. As a long-standing member of CIMP, we all knew that when Stan said he would complete a task, it

would be delivered on time and be totally reliable. He thrived on co-operation with others

In December 2001, many of Stan's colleagues and friends gathered in Lille to participate in a special symposium to honour his achievements. Many of the papers presented that day will be included in a Special Issue of the Review of Palaeobotany and Palynology entitled "Advances in Palaeozoic Palynology" which is currently in press. It is unfortunate that Stan did not live long enough to see it appear and appreciate in full the high esteem with which he was held. On retirement he had decided to sever the links with the science in order to enjoy more time with his family. His friendship and collaboration will be greatly missed. Our condolences are extended to his wife, son and daughter.

Bernard Owens
University of Sheffield

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<http://geo.arizona.edu/palynology/ifps.html>