

IOP NEWSLETTER 38

INTERNATIONAL ORGANISATION OF PALAEOBOTANY

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES

SECTION FOR PALAEOBOTANY

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PLEASE MAIL NEWS AND CORRESPONDENCE TO YOUR REGIONAL REPRESENTATIVE OR TO THE SECRETARY FOR THE NEXT NEWSLETTER, NUMBER 39. The views expressed in the newsletter are those of its correspondents and do not necessarily reflect the policy of IOP.

IOP NEWS

PAYMENT OF DUES

Forms are enclosed to help you pay for this year's membership. The cost is UK£5.00 or US\$10.00 or the equivalent. Please pay your regional representative.

REGIONAL REPRESENTATIVES

Under our new constitution it is a necessary condition of membership that your name is registered with your regional representative. This is automatic when you pay your dues, except for those in East Europe, USSR and China who send just their names and addresses to their representative.

OBSERVATIONS

This was the title of a new experimental column that appeared in the last newsletter number 37. It attracted a good deal of interest but not a single new contribution has been received. Of all people, palaeobotanists should be able to make these very frequently so apathy, modesty or introversion must be the explanations for such silence. Please observe and describe. NOW!

AN OBSERVATION ON THE NEW BUSH ADMINISTRATION AND GLASNOST

Of late, many political commentators have been comparing the different styles of the two new Presidents in the USA and the USSR. It is unusual for so little to come out of the White House and for so much come

from the Kremlin. One view is that the issue is concerned with some kind of intellect.

A similar reversal of roles seems to have occurred with palaeobotanists. This newsletter and the last contain many more contributions from the eastern bloc than from the west. This observation is designed to put things right.

THE PLANT FOSSIL RECORD

The IOP Executive Committee has formulated the following proposal. It is now authorised by IUBS (see item below) and has been submitted for approval by the IFPS and other organisations. Consideration is being given for it to serve as the basis of a new International Geological Correlation Program Project.

Will those interested in helping with this project please write to the IOP Secretary indicating the group, age bracket and region of their interest.

1. Introduction

The names of plant fossils are used to understand evolution and applied geological problems such as the age of rocks and the ways in which they were formed. Their descriptions are scattered in libraries all over the world and give very varied attention to detail.

This proposal aims to create a pc database of the fossil record

- 1.1 so others as well as palaeontologists can use it
- 1.2 according to an agreed international standard format
- 1.3 so that the data can be retrieved freely by all scientists
- 1.4 so that standards of taxonomic description are high
- 1.5 which is compatible with all international rules
- 1.6 so that details such as quantitative observations can be included
- 1.7 that can be maintained, updated and emended in the future.

2. The Problems

- 2.1 At one extreme the International Code of Botanical Nomenclature requires that these taxa have only loose descriptive criteria yet insists on type specimens, priority and rank.
- 2.2 At the other extreme Biorecords have tight descriptive criteria with no types, priority or rank.
- 2.3 Neither allows easy synonymy for applied use, such as for statistical analysis or comparison with other data.
- 2.4 PC databases can store, sort and retrieve such data and are beginning to be created separately by different scientists in different ways for different reasons.
- 2.5 'Taxa in common use' implies that some are useless. Who decide the criteria?
- 2.6 Different standards of access, curation and

preservation decrease the efficiency of comparative studies.

3. The challenge

- 3.1 Negotiation to resolve the differences between 1.1 and 1.2 above can reach a democratic consensus.
- 3.2 Computerised data bases for palaeontological data are inevitable.
- 3.3 A standard format for these must be agreed now to avoid incompatibility and to enable the job to be done just once.

4. The work

- 4.1 Arrange a democratic means to agree a standard format of nomenclatural and taxonomic practice.
- 4.2 Write programmes to give this agreed standard existence.
- 4.3 Establish an international network to accumulate data, store and retrieve.
- 4.4 Input data to pc files.
- 4.5 Store and manage these PLANT FOSSIL RECORD data.

5. The Product

- 5.1 Regions (such as North America, Europe (+ Arctic), USSR, South America (+ Antarctic), Australia, Africa, Japan, India etc) of the international network must be able to store, retrieve and maintain their database and link to a standard international one.
- 5.2 A sponsorship-financed central clearing house must continue to provide international access to data for all earth scientists, both for accumulation and distribution.

IUBS EXECUTIVE COMMITTEE MEETING, Paris, April 1989

The IOP is a Section of the International Union of Biological Sciences and the secretary attended this two day meeting at his own expense. The IOP's Plant Fossil Record proposal and the IAPT's Names in Common Use project were both discussed. The latter project was summarised in IOP Newsletter 37 and receives \$8,000 support from IUBS in the 1989 budget presented at the meeting. Total IUBS expenditure for 1989 in that same budget is \$552,000. No money was allocated separately for the IOP proposal.

LAST WEDNESDAY OF THE MONTH MEETINGS, London

The Cranley Arms is closing down and May 31st will be the last time IOP members can meet there together. Future meetings will be at the previous venue, the Norfolk Hotel bar, opposite South Kensington Station in Harrington Road.

REPORTS OF RECENT MEETINGS

IOP SOCIAL EVENING, Praha, Czechoslovakia, February 1989

There was a meeting of Czech palaeobotanists and one other from England in the medieval rooms of a Prague convent one warm February evening this winter. These meetings have become something of a tradition over the last twenty years. The discussion this time centred around the merits of Vitis vinifera cv. roulandensis, a Moravian plant growing on the Miocene and Holocene hinterland. When found in the compressed state the preservation of this material is excellent. Unfortunately a full report is not easily available.

VISTAS IN INDIAN PALAEOBOTANY, Lucknow, November 1988

73 papers were presented and covered a wide spectrum, such as origin and antiquity of life, palaeobotany of fossil fuels, evolutionary trends, palaeoclimates, palaeoenvironments and taxonomy through artificial intelligence. Palaeobotanists from 17 Indian universities and all the research organizations pursuing palaeobotanical research in India participated. 2 delegates from France and 1 delegate from West Germany also contributed. Most of the papers are expected to be published in Volume 38 of The Palaeobotanist.

One of the main activities of the symposium was a panel discussion to work out modalities and to frame an action plan for the promotion of palaeobotany and palynology at the graduate level. It was decided that the Birbal Sahni Institute with the help of the universities will revise and update the curriculum and develop excellent teaching material.

PERSPECTIVES IN ROMANIAN PHYTOPALAEONTOLOGY & PALYNOLOGY, Cluj, November 1988

This seminar was held at Cluj-Napoca and was organized by the Romanian Academy. 26 papers were presented, including the following:

- Silurian Chitinozoan assemblages of Moesian Platform (M. Popescu);
- Late Paleozoic flora of Secu and Clocotici (C. Bitoiaru);
- New researches about Lower Liassic fossil plants of Anina (R. Givulescu)
- Liassic foliar prints and nannoplankton of Suncuius (NN. Mewszaros et al)
- Rhodophyceae calcareous algae of Upper Cretaceous deposits from Hasdate (Ion I. Bucur)
- Palynological studies of Ileanda Beds (Oligocene) (J. Petrescu)
- New taxonomic data about habitats and ecology of Byttneriophyllum tiliaefolium (A. Braun) Knob. & Kvacek and B. giganteum (Goeppert) nov. comb. (N.

Ticleanu).

-Palynological analyses of alluvial sediments from Eselnitaorsova sector, Danube (Nicolae Boscaiu);

-Importance of peat conservation for palynological documentation (N. Boscaiu)

The papers presented at this Cluj Symposium will be published in a special volume by the Romanian Academy Publishing House. Information about the volume can be obtained from:

Dr. Nicolae BOSCAIU, Univ. Cluj-Napoca, Str. M. Kogalniceanu No. 1, 3400 Cluj-Napoca, Jud. Cluj, Romania.

READINGS COMMEMORATING THE LATE S.V. MEYEN, Moscow, April 1989

From April 6-8th, 1988 the Geological Institute of the USSR Academy of Sciences convened Memorial Readings devoted to the first anniversary of the death of Sergei Viktorovich Meyen (1985-1987). The Readings were organized by the Stratigraphy Sector and Laboratory of Palaeofloristics of the Geological Institute of the USSR Academy of Sciences in cooperation with Palaeontological Section of MOIP (Moscow Society of Naturalists) and the Higher Plant Commission. About 300 geologists, biostratigraphers, palaeontologists, biologists, philosophers and other specialists from the USSR Academy of Sciences, the USSR Ministry of Geology, Higher Educational Institutions and other establishments participated in the Readings.

The opening reports delivered by V. A. Krashenninikov and V. V. Menner as well as the one read by A. V. Gomankov discussed the main phases of S. V. Meyen's scientific activity and emphasized the major role he played in elaborating Carboniferous and Permian stratigraphy and palaeofloristics. The authors paid special attention to a fundamental contribution Meyen had made into stratigraphy by developing its theoretical basis as well as by promoting the solution of general problems of palaeofloristics, phytogeography and global plant evolution.

Problems of methodology and ethics in natural sciences

The majority of reporters in the first group were biologists and philosophers. The subjects they covered had rather little relevance to palaeofloristics and stratigraphy which particularly emphasized the wide scope of S. V. Meyen's scientific interests. Several reports commented on the contribution he made in to the collaboration of methodology and philosophic problems of natural science, evolutionary theory and the present-day studies of science principles: M. A. Rozov 'W. V. Meyen's principle of compassion and peculiarities of the present scientific society', P. S. Karpinskaya 'Discussing philosophic views of S. V. Meyen', S. V. Chebanov 'The refrains theory', V. Yu. Militarev 'S. V. Meyen as a gnosnologist', K. L. Kull 'The Species origin without natural selection. A concept of recognition', A. A. Sharov 'S. V. Meyen's typological conception of time', R. V. Barantsev's report 'S. V. Meyen and A. A. Liubishchev', was devoted to a long

correspondence of the two scientists which contained important information pertaining to different aspects of the evolutionary theory not touched upon in their known published works. The 'compassion' principle formulated by S. V. Meyen is currently growing particularly important as a fundamental one in scientific ethics.

General stratigraphic principles

The reports on general problems of stratigraphy dealt with the stratigraphic classification (Yu. V. Teslenko), Late Paleozoic stratigraphy and palaeogeography of events (V. I. Ustritsky), magnetostratigraphy (E. A. Molostovsky) on the one hand and the depositional environments of several particular sequences (G. A. Zavorsin and I. N. Krylov 'Depositional environments of Upper Riphean organogenic carbonate strata (the Minyarian suite)', M. G. Minikh 'The problem of genesis of Permian red-bed formations', I. I. Molostovskaya 'Upper Permian non-marine ostracods and their stratigraphic significance') on the other hand. A. I. Kiritchkova in her report treated fossil plant systematics and detailed phytostatigraphy.

Plant morphology

Most of reports in the third phase dealt with Paleozoic plant anatomy, morphology and systematics: G. N. Vasilieva's 'Morphology, systematics and florogenesis of Early Carboniferous Rodeopterida in the Eastern Urals', A. V. Bogov's 'S. V. Meyen's contribution to studies of Upper Permian flora based on examples using phylladosperms', I. I. Mashchuk's 'The structure of single sporangia obtained from Upper Carboniferous deposits in the Malobotuobinian region', M. S. Ignatov's 'Mosses from Permian coal-bearing deposits in the Pechora basin and their stratigraphic significance', S. G. Gorelov, S. K. Batyaev and A. Z. Yuzvitsky's 'S. V. Meyen's views on systematics and stratigraphic distribution of the Angara cordaites and the present knowledge obtained on the problem'. M. A. Voronova in her report paid special attention to regularities of Lower Cretaceous palynoflora evolution and migration courses. S. V. Meyen's hypothesis on gamoheterotopic origin of angiosperms was considered by A. B. Germann.

A most important report of A. P. Ananiev and T. V. Zakharova characterized palaeontological collections as unique natural monuments and urged the necessity of a law protecting them. It is known that as a scientific associate of the Geological Institute of the USSR Academy of Sciences, S. V. Meyen undertook great labour to preserve palaeontological collections of the Institute.

Stratigraphy and palaeofloristics

The concluding group of reports commented on ecological and biostratigraphical research of Upper Paleozoic deposits in different parts of the USSR,

especially those in the Pechora basin, the Pre-Urals region, Kazakhstan and the Siberian regions where deposits are extensively developed in continental coal-bearing facies

V. A. Ananiev 'Lower Carboniferous continental ecostratigraphy of Middle Siberia',

M. V. Oshurkova 'Bio and ecostratigraphy of coal-bearing deposits in Central Kazakhstan',

L. A. Goganova and M. I. Radchenko 'On controversial age definitions based on flora and fauna of Upper Paleozoic deposits in Kazakhstan',

E. Yu. Seitmuratova, G. F. Lyapichev, Yu. I. Lyalin, L. A. Goganova 'The present knowledge of Late Paleozoic deposits in Kazakhstan',

E. Yu. Seitmuratova, G. F. Lyapichev, Yu. I. Lyalin, L. A. Goganova 'The present knowledge of Late Paleozoic stratigraphy of the Balkhash-Ilyisk volcanic belt',

K. Z. Sal'menova 'The Upper Paleozoic flora of Kazakhstan: problems and objectives',

S. F. Pavlov, N. I. Akulov 'The intrazonal correlation of Upper Paleozoic deposits in southern Tunguska basin',

I. S. Muraviev 'On the age of the Pechora basin Vorkutian series',

S. V. Piukhonto 'Flora's stratigraphic significance in subdividing Permian coal-bearing formations in the Pechora coal basin',

T. A. Iskandarkhodzhaev 'To phytostatigraphy of the Upper Paleozoic extrusive-sedimentary strata in Eastern Uzbekistan',

V. P. Tverdokhlebov, G. I. Tverdokhlebova, A. V. Gomankov 'Specific features of Late Tatarian landforms in the Southern Urals',

G. N. Sadonnikov, E. P. Orlova 'The Upper Permian continental boundary in Siberia'.

More general palaeofloristic and phytogeographic problems have been touched upon in the reports presented by Yu. G. Gor 'Late Paleozoic phytocenosis in Angaraland and S. V. Meyen's role in their recognition',

M. V. Durante 'S. V. Meyen's palaeobotanic studies and their role in elaborating Upper Paleozoic stratigraphy',

N. K. Mogucheva 'Floral changes at the Permian - Triassic boundary and Triassic phytostatigraphic boundaries in Angaraland'.

M. A. Akhmetiev has presented a report devoted to geographic differentiation of world floras in the Cenozoic against the background of geological event at the time.

The Readings have once more emphasized the outstanding role S. V. Meyen played in the elucidation of general problems of stratigraphy, palaeofloristics, biology, theory of evolution as well as his personal contribution to Late Paleozoic plant studies. They have illustrated an evergrowing interest given to his scientific heritage and his fruitful ideas which are now being developed by his colleagues and students.

M. A. AKHMETIEV, A. V. GOMANKOV, M. V. DURANTE, Moscow, USSR

NEWS OF FORTHCOMING MEETINGS

IV INTERNATIONAL CONGRESS OF SYSTEMATIC AND EVOLUTIONARY BIOLOGY, Maryland, USA, July 1990

The theme of this meeting is The Unity of Evolutionary Biology and the first circular is now available. Symposia are planned which will be of interest to palaeobotanists, such as "Extinction and Evolution" and "Ecosystems through Time". Write to: Congress Secretary, ICSEB-IV, Department of Microbiology, University of Maryland, College Park, Maryland 20742, USA.

5TH ARGENTINE PALAEONTOLOGY & BIOSTRATIGRAPHY CONGRESS, San Miguel de Tucuman, April 1990

This general meeting will concern the main headings as well as palaeoclimatology and techniques. Submit manuscripts before August 1989 to: V Congreso Argentino de Paleontología y Biostratigrafía, Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad Nacional de Tucuman, Miguel Lillo 205, 4000 San Miguel de Tucuman, Argentina.

INTERNATIONAL CONGRESS OF THE CARBONIFEROUS-PERMIAN, Buenos Aires, September 1991: Palynological Symposium

The II International Congress of Carboniferous-Permian Stratigraphy and Geology (II - ICCP) is to be held during 22-27 September 99 in Buenos Aires, Argentina. The scientific programme planned for the Congress is a diverse one embracing many aspects of Upper Palaeozoic stratigraphy, biostratigraphy, palaeontology, palaeobotany, sedimentology, coal geology, geochemistry, geotectonics, geochronology, and economic geology. If you have not already received a copy of the First Circular, copies are available from the Congress Convener, Dr. Sergio Archangelsky, Museo Argentino de Ciencias Naturales, Av. A. Gallardo 470, Buenos Aires 1405, Argentina.

The II - ICCP Palynological Symposium will cover a diversity of palynological topics within that age-range, including: miospores, megaspores, organic-walled microphytoplankton, natural affinities of palynomorphs, palynomorph/lithotype relationships; and applications of palynomorphs in such fields as biostratigraphy (including Devonian - Carboniferous and Permian - Triassic boundary criteria), phytogeography, palaeoecology, and maturation assessments.

Details concerning the time allocations for oral presentations and concerning poster specifications will be announced in the next Congress Circular. Also, poster specifications will be announced in the next Congress Circular. Also contributors will be

invited to prepare their contributions for publication in the Congress Proceedings (Compte Rendu) as for previous congresses. In the meantime, it would be very helpful if you could advise one of us, as Symposium co-conveners, whether you think there is a reasonable chance of your being able to participate in the Symposium and, if so, provide a tentative title for your contribution:

G. PLAYFORD, Dept of Geology, University of Queensland, St. Lucia, Brisbane, Australia 4067

C. AZCUY, Dept Ciencias Geológicas, Univ. de Buenos Aires, Pabellon 2 - 1428 Nunez, Buenos Aires, Argentina

B. OWENS, British Geological Survey, Keyworth, Nottingham NG12 5GG, England

POLLEN AND SPORES: PATTERNS OF DIVERSIFICATION, London, 28-30th March 1990

This is being organised by S. Blackmore and S. H. Barnes, British Museum (Natural History), for The Linnean Society of London and the Systematics Association. The symposium aims to explore the origins of the great morphological diversity exhibited by spores and pollen grains in terms of:

1. the evidence for diversification in the fossil record of dispersed and in situ spores and pollen grains;
2. the relationships between ontogeny, evolution and form;
3. the diversity of extant groups interpreted by current analytical methods.

The meeting will bring together contributors from the fields of palaeobotany, ontogeny and molecular biology, and systematic palynology to produce novel insights into the pathways and processes of diversification in land plant spores and pollen grains.

The programme is now full but contributions to the timetabled poster sessions are invited. Further details may be obtained from: Susan H. Barnes, British Museum (Natural History), Cromwell Road, London, SW7 5BD, UK.

INTERNATIONAL SYMPOSIUM ON NORTH SEA BASIN PALYNOLOGY, Nottingham, England. 2-6 April 1990

The Biostratigraphy Research Group of the British Geological Survey and the Commission Internationale de Microflore du Paleozoïque Invite you to participate in North Sea '90, an international symposium to celebrate the contribution made by palynology to the first 25 years of exploration and development of the hydrocarbon resources of the North Sea Basin.

1990 marks the 25th anniversary of the commencement of exploration drilling in the North Sea Basin. It is appropriate that this occasion should be marked by a major symposium which will highlight the contribution

that palynology has made to that exploration and development programme. From initial work on Carboniferous miospores in the southern North Sea Gas Fields to the more recent studies of Jurassic and Tertiary palynomorphs in the oil fields of the British and Norwegian sectors of the Northern Sea, palynology has become the most extensively used biostratigraphical tool in this major exploration area.

The symposium is aimed at the presentation of contributions which will demonstrate the potential of Palaeozoic, Mesozoic and Cainozoic palynological studies to biostratigraphical correlation in the North Sea Basin and adjacent areas. It is anticipated that the programme will include contributions relevant to stratigraphical palynology, palaeoecology, palaeoclimatology and palynofacies studies from both the academic and commercial sectors.

Venue and accommodation - The symposium will be held in the De La Beche Conference Centre at the headquarters of the British Geological Survey, Keyworth, on the southern outskirts of Nottingham. Rooms will be available for demonstration, poster sessions and workshop meetings of specialist groups.

An accommodation package will be arranged in the halls of residence of the University of Nottingham. Transport will be provided between the University site and the Conference Centre. For participants who prefer hotel accommodation, an extensive range is available in the city centre.

Preliminary programme

Monday April 2 Registration: Opening Reception

Tuesday April 3 - Thursday April 5: Scientific sessions

Thursday April 5: Symposium Dinner

Friday April 6: Optional one-day transect of the Carboniferous to Cretaceous successions in eastern England.

Cost - An accommodation package consisting of dinner, bed and breakfast in a single study-bedroom in a university hall of residence, together with buffet-style lunch at the Conference Centre, will cost approximately UKL25 - 28 per day.

The amount of the registration fee has not yet been fixed, but it is expected to be approximately UKL25.

A second circular will be issued in June 1989 to all palynologists who indicate their interest by returning the attached slip.

3rd INTERNATIONAL SENCKENBERG SYMPOSIUM IN PALAEOBOTANY, Frankfurt am Main, May 27 - June 2, 1990

IN HONOUR OF RICHARD KRAUSEL

Richard Krausel was the promotor of several fields in palaeobotany. Even as a young man he had contributed quite a lot to the advancement in xylotomy. Together with his friend Hermann Weyland he founded Devonian palaeobotany in Germany, and both together have developed techniques of cuticle analysis.

In honour of the 100th anniversary of Richard Krausel's birth in 1890, the Forschungsinstitut Senckenberg,

Frankfurt am Main, is going to arrange a memorial symposium. We have chosen the topic: 'Anatomical Investigations of Plant Fossils: Modern Methods and Applications' because it was one of Richard Krausel's main aims to study anatomical structures wherever possible. This topic should involve all aspects of anatomy from any plant tissue or organ including cellular detail of ultrastructure and permineralized or compression preservation. However, the presentation of other topics will be possible if time is available. The presentation of posters will also be possible.

May 28th Lectures

May 29th Morning: Lectures

Afternoon: Excursion to the famous oilshale deposit Messel (Eocene) - F. Schaarschmidt (A)

May 30th Lectures

May 3rd Excursion to the Devonian of the Rhine Area (Eifel, Wahnbachthal) - H.-J. Schweitzer (B)

June 1st - Departure or 2nd Workshop and excursion 'Early Devonian' in Munster - W. Remy

Because of the limited time, it may not be possible to include all lectures which are offered. For everyone who cannot be selected, space for a poster will be available.

It is intended to publish the lectures and posters in a special symposium volume in Courier Forsch.-Inst. Senckenberg.

Registration fee: DM 200. (reduced to 175.)

Excursion fee: (A) DM 20. (B) DM 120. (incl. 1 night in Bonn)

The registration fee covers the expenses for the social programme, the abstract volume, the symposium volume and is desired with the return of attached registration form. In advance it will be reduced to DM 175.- (valid until January 1st, 1990).

Prepaid registration fees cannot be refunded after cancellation of registration later than March 1st, 1990.

Information about accommodation will be sent to those who register.

The excursion fee includes accommodation and lunch.

Please make cheques payable to 'Senckenbergische Naturforschende Gesellschaft (KRAUSEL Symposium)' or pay by bank transfer to the following account numbers:

• Postscheck Frankfurt/M 7985-604 BLZ 500 100 60
BHF-Bank 5-00738-0 BLZ 500 202 00
Stadtsparkasse Frankfurt 760 57 BLZ 500 501 02
Remittances or cheques must be made in DM and free of charge.

Accommodation in Frankfurt: Participants should expect to pay

DM 50 to 75 for a single room and

DM 90 to 130 for a double room for bed and breakfast.

The workshop and excursion in Munster will be organized separately by Prof. W. Remy. The fee will be calculated separately by the organiser and announced after registration.

Return the registration form before September 1st, 1989

Payment of reduced fee and excursion fee January

1st, 1990

Deadline for abstracts March 1st, 1990

If you have any problems, please contact: Dr. Friedemann Schaarschmidt, Sektion Paläobotanik, Forschungsinstitut Senckenberg, Senckeneranlage 25, D-6000 FRANKFURT AM MAIN, FRG.

FRENCH PALAEOBOTANISTS VISIT CHINA

Within the framework of a joint research program in Palaeobotany between the Academia Sinica and the C.N.R.S., which started 3 years ago, DR. G. BARALE (Univ. Lyon), DR. L. GRAUVOGEL-STAMM (C.N.R.S., Strasbourg), PROF. J. P. LAVEINE (Univ. Lille) and PROF. Y. LEMOIGNE (Univ. Lyon) spent one month in China, from 4 September - 1 October 1988.

In Beijing G. BARALE and L. GRAUVOGEL-STAMM visited the Laboratory of Palaeobotany of the Botanical Institute, Academia Sinica, and the Geological Institute of the Chinese Academy of Geological Sciences. In Nanjing they stayed in the Palaeobotanical Department of the Institute of Geology and Palaeontology, Academia Sinica, where they could examine several beautiful collections of Triassic, Jurassic and Lower Cretaceous fossil plants. They also had the opportunity to visit the Botanical Garden of Nanjing and to look at the interesting herbarium of the Jiangsu Institute of Botany.

After these visits, G. BARALE and L. GRAUVOGEL-STAMM made a field trip during which they could collect fossil plants. G. BARALE investigated the Jurassic and Lower Cretaceous Formations of Zhejiang Province under the guidance of DR. CAO Zheng-yao (Nanjing Institute of Geology and Palaeontology, Acad. Sinica) and DR. CHEN Qi-shi (Oil and Petroleum Institute of Hangzhou). DR. L. GRAUVOGEL-STAMM, together with PROF. ZHOU Zhiyan (Nanjing Institute of Geology and Palaeontology, made a field trip in the well developed Lower Triassic of Shanxi Province under the guidance of DR. WANG Ziqiang (Tianjin Institute of Geology and Mineral Resources, Chinese Academy of Geological Sciences) and Dr. Wang Lilin (Bureau of Geology and Mineral Resources of Shanxi Province).

J. P. LAVEINE and Y. LEMOIGNE together with DR. ZHANG Shanzhen (Nanjing Institute of Geology and Palaeontology) spent September in the field to collect Lower and Middle Carboniferous fossil plants. They went first to North China in Ningxia Province, under the guidance of DR. LIU (Geological Survey of Yichuan) and then to South China, in the area of Guangzhou (Canton), Guangdong Province, under the guidance of Prof. Deng (Univ. of Canton, Department of Geology). These investigations complete those they had undertaken since 1986 in the North and South China.

Everywhere they received a warm welcome.

PALAEOBOTANY AND PALYNOLOGY AT ROYAL HOLLOWAY & BEDFORD NEW COLLEGE, LONDON

Royal Holloway and Bedford New College (RHBNC), University of London, 4 years after the merger which created the new College, has an active research group of 5 full-time and 1 part-time postgraduate students and one post-doctoral fellow linking the Geology and Biology Departments. These students, variously under the supervision of Professor W. Chaloner in Biology and Dr. A. C. Scott and Dr. L. Frostick in Geology are continuing the strong history of palaeobotany established by the original Colleges.

The New College was formed by the merger of Royal Holloway College and of Bedford College of London University in 1985. Margaret Benson was at Royal Holloway College in Botany in the early part of this century and her contributions to palaeobotany include the study of anatomically preserved Carboniferous plants. Most notable were her studies on some of the Pettycur limestone plants from the lower Carboniferous of Scotland including the description of *Sphaerostoma ovale* and of *Botryopteris*. *Bensonites* from the Pettycur limestone was named by Rina Scott after her. It is amusing to note that the dispersed megaspore of *Bensonites*, *Didymosporites*, was later described by W. G. Chaloner and the palaeoecology of the deposit by A. C. Scott. Emily Dix who established a plant zonation of the upper Carboniferous in Britain was a lecturer in geology at Bedford College and the tradition of working on Coal Measure compression fossils is continuing. The Geology Department at R.H.B.N.C. was the result of the merger of three existing geology departments in London from Chelsea, Kings and Bedford colleges. The Chelsea Department was founded in the 1920's by Arthur J. Maslen who published on the anatomy of coal all plants, including lycopods and pteridosperms. King's College also has a tradition of both palaeobotany and palynology, with W. T. Gordon being head of Geology for many years in the 1930's and 1940's. Gordon published widely on lower Carboniferous anatomically preserved plants from Scotland and many of his localities, Pettycur, Oxroad Bay and North Beswick have been reinvestigated by A. C. Scott and his students. Gordon described many important genera including *Salpingostoma* and *Tetrastichia*. John Richardson also developed palynology at King's College before his move to the B.M.N.H. This tradition, of the several London Colleges, is being developed in many different directions, both in Biology and Geology.

Professor W. Chaloner with his general interest in palaeobotany and palynology and more particular interest in the Palaeozoic, is supervising P. Holmes, A. Hemsley and T. Jones. Dr. A. C. Scott whose interests include palaeoecology and coal formation has a post-doctoral fellow, Dr. S. Massoud and is supervising J.

Stevenson, P., Highton, A. Hemsley, T. Jones and A. Pearson. Dr. L. Frostick a sedimentologist is supervising P. Holmes. A review of the six research topics follows:

Now in his 3rd year PHILIP HOLMES is examining aspects of spore/pollen taphonomy, concentrating on their transport in rivers and lake currents. Much of the research is laboratory based using a 7.5M recycling flume. This is linked to the 'real world' by a study of spore/pollen distribution in Silwood lake, Berkshire. Also in his 3rd year is Jonathan Stephenson who is working on arthropod-plant interactions and co-evolution in the fossil record. His work has concentrated on insect-plant interactions in the Cretaceous and Tertiary and investigating the changes across the K/T boundary in particular. In addition he is undertaking 'experiments' using living plants and insects.

PHILIP HIGHTON and ALAN HEMSLEY are both in their 2nd year. Philip is evaluating the use of palynofacies analysis in paleoenvironmental studies and assessing the use of such analysis in local facies correlation. The project should also lead towards a better understanding of the distribution of microspore taxa within clastic Coal Measure sediments. Alan's research is the ultrastructure of the fossil spore exine as a diagnostic feature in association with more traditional methods. Transmission electron microscopy is employed to produce a high resolution picture of sporoderm organisation. Results have been obtained for spores from *Parkia decipiens* (Lower Devonian) and *Naiadites lanceolata* (Rhaetic). A survey of Upper Devonian and Lower Carboniferous megaspore exines is intended to elucidate evolutionary trends amongst these spores and to obtain some indication of the function of the ultrastructural elements present.

The two new members of the Group are TIM JONES and TONI PEARSON. Tim is researching into various aspects of fusain, employing S.E.M., reflected light and other techniques. Fossil material, modern wildfire litter and experimentally charred material are all being examined. Toni is looking at fragmentary plant material in the size range 200µm-5mm from the Yorkshire Coal Measures and their use in aiding palaeoenvironmental and palaeoecological interpretations. In particular megaspores, cuticles, wood and charcoal fragments will be studied.

Dr. S. MASSOUD has just begun working with Dr. Scott on the source rock evaluation of Mesozoic and Tertiary sediments in East Asia. This work illustrates another feature of our work linking different disciplines including organic and stable isotope geochemistry with palynology. Also associated with this group working more widely on non-marine sourced oils is Dr. S. Killops in the Chemistry Department and Dr. D. Matthey in Geology.

As an interdepartmental interdisciplinary team we meet regularly, and have a monthly 'paper club', where new, significant, published papers across the spectrum of palaeobotany and palynology are discussed, and we frequently have visits from outside research groups. Whilst palaeobotany and palynology are under attack in many institutions, at R.H.B.N.C. the

subjects play an important role in undergraduate teaching and research, both in Biology and Geology, and our research base is expanding.

T. JONES, London

BOHEMIAN BIOGRAPHIES

THE TALENT OF AUGUST CORDA (1809-1849)

This year has two anniversaries for August Joseph Carl Corda, a gifted naturalist, chemist, surgeon, microscopist, illustrator and honorary member of several European scientific societies. IOP members will have met his name either in the labyrinth of synonymies, or adapted to form the name of a fossil plant.

Born on October 22nd, 1809 in Liberec (formerly Reichenberg, North Bohemia), an orphan, this German-speaking self-made man died when returning home from a promising expedition to Texas in September 1849.

The peculiar life of this exceptional and rather inconsistent personality was described by his biographer and good friend Dr. W. R. Weitenwebber in 1851/1852. I would rather direct your attention to a special quality of August Corda: he was innately skilled in the art of drawing!

The 'gift of God', in a high degree appreciated by contemporaries, was probably resulting from a mixed descent of Corda's family, representing ancestors from Italy, Switzerland, Germany and Bohemia; without any doubt, it was also connected with a talent to observe and see more than others did before. About 1825 he was given a microscope, not the best but a serviceable one. This allowed Corda's talent to develop rapidly.

He started to depict micro-spatial life of organisms with all his vitality. In this activity drawings played a very important role. Looking into the microscope, Corda was able to figure everything he had observed and to distribute it in a trustworthy and convincing way among contemporary scientists in Europe. Just the successful drawings represented an essential part of his papers and made him famous overnight. On the other hand, this outstanding capability to draw things also helped him to overcome bitter periods of financial crises. In May, 1835, he finally obtained a more fixed job. Due to the intervention of Alexander von Humboldt, Caspar Maria count of Sternberg effected Corda's appointment as curator of the Zoological and Palaeozoological Collections at the Czech Patriotic Museum in Prague (now the National Museum).

Thus, for the following 13 years of his life, Corda was kept in contact with fossils, too. Sternberg and K. B. Presl employed him to make illustrations for their closing chapters of the *Flora der Vorwelt* (1835 and 1838). He also made his first steps in the field of palaeobotany. As a special supplement, his *Skizzen zur vergleichenden Phytomie* were arranged to follow page 220 of Sternberg's and Presl's Heft 8 (1838). In the first larger

palaeobotanical study Corda again asserted his skills as a microscopist, by becoming a pioneer of palaeoxylotomy.

In the *Flora der Vorwelt*, a fundamental book of European palaeobotany, there are several copper-engravings worked by Sternberg's engraver J. Strum after the original drawings of Corda (see Band II, Plates LI, LII, LIV, LV, LIX, and A). By himself, Corda engraved Plate LV, a typical sample of his capability to render fine details of microstructures. By his hand were also made original lithographs for Plates LVI-LVIII, LI-LXII, LXIV-LXVII and, perhaps, the three unsigned ones: Plate LIII, LXIII and B. When hand-coloured, these Corda's graphic works represent intuitive patterns of palaeobotanical illustrations from the first half of the 19th century, the time when studying fossil plants first became a scientific discipline.

He also published some illustrations of fossil plant specimens separately. For example, he made three lithographs for Sternberg's paper on *Cycadites cordai*, *Poacites tenuis-nervis*, *Flabellaria borassifolia* and *Calamopora acanthopora*, one plate with four figures of *Huttonia spicata*, two lithographs for K. B. Presl's *Beiträge zur Kunde vorweltlicher Pflanzen* (1838), a plate for his own study on *Diploxyton* (Corda 1840), illustrations for the *Beiträge zur Flora der Vorwelt* (Corda in Reuss 1845 - 1846) and others.

From the point of view of Corda's lifelong activity in scientific illustration, the above mentioned pictures represented a slight fragment of his total production. Moreover, it seems to me that he was much more interested in the illustration of living nature; some litho-prints of fossils are schematical and improvised, especially those of trilobites (see Hawle and Corda 1847) and plant megafossils. As if Corda made them in addition, without full concentration and interest: either to secure his essential details of life or by being stressed both by the time and authors. But, maybe, there were some other reasons.

The only portrait of Corda was by the painter E. Seibertz in 1843. Looking at the lithographed caricature, we can see a relatively young fellow with lively eyes and a high forehead, wearing a pair of eye-glasses. His eyesight may have been harmed by microscopy and drawing.

There is another possible explanation.

In Corda's inheritance of numerous sketches, manuscripts, outlines and finished drawings (sometimes hand-coloured in an extraordinarily beautiful style) Dr. J. Obrhel (1980) has found a self-portrait, probably an idea as a personal 'ex libris'. The drawing is seen in rather a sad, romantic manner of that time, but it also reveals a surprising fact: its author did not know how to sketch the figured objects in their appropriate spatial perspective. Such ill-sketched perspective could be an accident but I believe that Corda might have had some ophthalmic handicap. It did not prevent him from doing illustrations of enlarged micro-objects but it did present obstacles when spatial macro-objects were reproduced from a distance. Some errors in his megafossil illustrations can

possibly be explained in this way.

In addition, he learned other techniques of graphic arts, for use in direct printing. In those times copper-engraving was a very common way to make scientific illustrations but there were not many scientist-engravers. Lithography as such was quite a modern method at the beginning of the 19th century; Corda became acquainted with both the methods and used them in a masterly way. Some of his litho-prints show the author's great sense for a fine-grained shading, for example. Although his copper-engravings do not equal Hollar's brilliancy, they depicted the figured objects by fine, clear, gentle and carefully laid lines, suppressing any manifestation of the author's subjectivity. Czech expert D. Sindelar (1973) has called Corda's illustrations products of pure creativity flowing into an impressive ornamentation with a flavour of abstractness, all in all resulting from the perfectness of recognition as well as from the accuracy of elaboration.

His early death in a shipwreck deprived our subject of a brilliant artist.

A. HLUSTIK, Slany, Czechoslovakia

KAREL BORIVOJ PRESL (1794 - 1852)

The early decades of the 19th century saw Czech national science developing with serious difficulties. It was awaking from the suppressive atmosphere of the germanophilous and germanizing milieu of the Habsburgian multinational 'confederation', sometimes called a 'Prison of Nations'. From a palaeobotanical point of view, there were only three scientific individuals in Bohemia throughout the first half of the last century.

The first one, the famous Caspar Maria count of Sternberg (1761 - 1838), was a German-speaking descendant of an old Bohemian aristocratic family, a clergyman by education, a botanist by delight. Born in Prague, the City of the Kingdom of Bohemia, he died at his hereditary Castle of Brezina as a possessor of collieries in Radnice, where many excellent samples of Carboniferous (Westphalian C) plants were collected.

The second member of the trio was Sternberg's protege Corda who is dealt with above.

The third figure was a Prague-native Czech, naturalist Karel Borivoj Presl (1794 - 1852). Truly said, there were two Presls in Prague: Jan Svatopluk Presl, an older brother of K. B., Presl, made famous not only as a gifted, widely educated naturalist, but mainly as a patriotic linguistic revivalist; he established principles of our scientific terminology that, in general, still is used in Czech papers. Both brothers, sons of a pin-maker, started their scientific careers as enraptured botanists, but, only K. B. Presl remained faithful to the discipline for all his life.

In 1818 he graduated as a *Medicinae Universae* doctor at the Charles - Ferdinand University in Prague. His doctorate dissertation thesis '*Graminae Siculae*' was a result of a ten-month journey in Italy (Sicily). When published, the paper made him suddenly famous

among European botanists. Since 1821 he worked in the Czech Patriotic Museum (now the National Museum, Prague). In 1823, mainly due to a recommendation by Sternberg, one of the founders and governors of the Museum, K. B. Presl was appointed a Curator of the Botanical and Zoological Collections. In these times he already was a well known botanist, enjoying a good international reputation. Sternberg thought of him as the best Czech specialist on living plants of those days.

Nevertheless, after many delays and troubles, K. B. Presl, was appointed an Associate Professor as late as in 1832. The True Professorship of Natural History at the Faculty of Philosophy of the Charles-Ferdinand University he obtained, finally, in 1839. He died in his Prague flat on October 2, 1852, three years after his brother Jan Svatopluk.

As a palaeobotanist, K. B. Presl was active for a short period between the years 1834 and 1839, when Sternberg had encouraged him to participate in finishing the second volume of the 'Versuch einer geognostisch-botanischen Darstellung der Flora der Vorwelt' (Presl in Sternberg 1838). In the very last years of Sternberg's life K. B. Presl supervised Botanical and Palaeobotanical Collections of the Museum only - the second curator was A. J. Corda, attending to collections of living and fossil animals. Moreover, Presl was also been finishing his unique morphological study 'Tentamen Pteridographia'.

He was Sternberg's main assistant in finishing his life-time work, starting from the fifth number of the 'Flora der Vorwelt', Presl worked out abundant samples of Permo-Carboniferous flora mainly. Besides numerous new fossil species, he also erected many new genera.

In 1838 K. B. Presl also published his only original palaeobotanical paper 'Beigtrage zur Kunde vorweltlicher Pflanzen', in which he dealt with sphenopsid fructifications Volkmannia elongata K. B. Presl, V. sessilis K.B. Presl and Rotularia marsileaefolia Sternb.

In recognition of his scientific work K. B. Presl was honoured by memberships of academies and societies (London, Vienna, Wroclaw, Moscow, etc). as well as solemnly proclaimed a philosophiae Doctor honoris causa on the occasion of the 500th Anniversary of the Charles University, Prague (1848). Czech and other botanists gave their respects to him by using his name for more than a score of new taxa. R. E. Holttum from Kew considered K. B. Presl the first botanist who had founded the classification of ferns.

As mentioned above, both the Presl brothers were excellent naturalists, but, as usual, they differed in their characters. In contrast to his brother Jan Svatopluk (an agile, enthusiastic man with deep sentiment for his nation), Karel Borivoj is remembered as a tedious Professor, reading his lectures in a monotonous, chill-sounding and hoarse voice, without any demonstrations, without visible interest in students.

Once, during an examination, a student was asked to describe the habit of the orang-utang; after a very short time K. B. Presl recognized the description was a verbal portrait of himself. Fortunately, he was also a kind-hearted and non-revengeful teacher!

While the fame of Jan Svatopluk did not pass the boundaries of the kingdom of Austria, K. B. Presl, became famous internationally. Although active mainly as a specialist in studies on living plants, he very successfully and valuably joined in the development of palaeobotany as a scientific discipline, in his homeland as well as abroad.

A. HLUSTIK, Slany, Czechoslovakia

NEWS OF INDIVIDUALS

O. DRAGASTAN Professor at the Faculty of Geology, Department of Geology and Geophysics, University of Bucharest will be celebrating his 50th birthday in February 1989. Just now, he has finished a paper: *Calcareous Algae (New and Revised), Microproblematicae and Foraminiferida of Upper Jurassic - Lower Cretaceous deposits from the Carpathian area*, a very important synthesis about many 'old' and new taxa, described during 25 years of researches in the field. This 'big' paper will be published with assistance of Professor Enrico Perconig in *Revista espanola de Micropaleontologia* - Madrid, in recognition of many contributions in the field of paleoalgology.

R. GIVULESCU, Cluj, Romania, has used cuticular analyses to study the Liassic flora of Anina and has obtained spectacular data for the Zamites, Podozamites, Otozamites etc. group. At the same time, Prof. Givulescu has presented a synthesis about the flora and vegetation of the large and rich fossiliferous complex of Chiuzbaia - Bala Mare (a richest flora, 9000 samples in the eastern Parathetys, comparable to the rich Neogene floras of Willershausen and Oeningen from W. German). [Title of paper: Short note on the fossil flora of the Late Miocene at Chiuzbaia, Maramures County, Romania - *Revue de Paleobiologie* Vol. 7/1, Geneve, 1988 - obtain further information from Prof. R. Givulescu, Str. Donath nr. 17, M2/66 3400 Cluj - Napoca.]

BIRGER BOHLIN, of Uppsala, Sweden, may be the world's oldest living palaeobotanist. An article celebrating his 90th birthday appeared in the Swedish newspaper UNT on March 25th 1988. He is no longer active within palaeobotany.

THE TOM HARRIS TRAVEL AWARD was endowed by contributions made in memory of the late T.M. Harris by many palaeobotanists and botanists from various parts of the world, including some readers of this newsletter. It was formally established in 1988 and we understand that the Botany Department at Reading University expects to make the first award from it in 1989.

R.A. SPICER was appointed Lecturer in the Department of Earth Sciences at the University of Oxford on January 1st 1989. This is in Parks Road, Oxford OX1

3PR. The telephone is 272000 and his hot-line may be 272987. He is also a Fellow of Saint Hugh's College. Until recently this was an exclusively female domain: building works to facilitate strictly male functions have not yet been completed. There is a walled fellow's garden.

A. WESLEY retired from his post as Senior Lecturer in Biology at the University of Leeds in September 1988. His research has concentrated on Liassic gymnosperms from the Venetian Alps of northern Italy, and he was also the first palaeobotanist to apply electron microscopy (TEM) to fossil plants in collaboration with B. Kuyper in 1951.

J. COETZEE retired from the Institute of Environmental Science at the University of Bloemfontain. She is still working at the microscope with Tertiary pollen and spore assemblages from the Cape Peninsula. Her new address is P.O. Box 1314, Somerset West, 7130 South Africa.

D.L. DILCHER, an IOP Vice-President, has been elected to the membership of the United States National Academy of Sciences. The New York Times April 30th 1989 edition announced: "new members were elected in a secret ballot of existing members, in recognition of their achievements in original research. The election of [60 new members] brought the total number of Academy members to 1,573. "The Academy, a private organization chartered in 1863 by Congress, acts as an official advisor to the Federal Government on matters of science and technology. That advice is usually provided by committees of experts appointed by the Academy." Others in the April list include W.A. Berggren, Woods Hole Oceanographic Institution, and S.J. Gould, Harvard University.

M.C. BOULTER, IOP Secretary, is now Professor of Palaeobiology, and Head of the Division of Environmental Sciences, at the Polytechnic of East London.

RECENT PUBLICATIONS

CONCEPTS, LIMITS AND EXTENSIONS OF THE INDIAN GONDWANA

The proceedings of this workshop have been published as a book in The Palaeobotanist Volume 36. A summary of the proceedings appeared in AASP Newsletter January 1988 Vol. 21 (1): 4-6 and IOP Newsletter 35:2-4 April, 1988. The volume comprises 42 articles covering the whole gamut of the Indian Gondwana in 377 pages. Priced at US \$ 150.00 (US \$ 160.00 Hard bound) or 85 pounds (airmail delivery), it is available from the Registrar, Birbal Sahni Institute of Palaeobotany, P.O. Box 160, Lucknow GPO 226 001, India.

BIBLIOGRAPHY OF AUSTRALASIAN PALYNOLOGY & PALAEOBOTANY 1987

This 20 page booklet is compiled by Helene A. Martin and lists 129 cross-indexed references and authors addresses. It is published by the PPAA.

It is the ninth in a series and all are available for A\$10 each, including postage. Write to Dr H.A. Martin, Botany Building A12, University of Sydney, 2006, Australia.

L'EVOLUTION DES GYMNOSPERMES

These proceedings of the September 1986 colloquium in Montpellier are now published by the Societe Botanique de France as Bull. Soc. Bot. France 134, 1987 (2).

There are papers by A. Pons, J.-C. Audran, G. Barale, W.G. Chaloner & J.M. Pettitt, L. Chesnoy, B. Lugardon, S.V. Meyen, D.D. Pant, E. Pena, E. Grillo & L. Diaz, W.E. Stein & C.B. Beck, T.N. Taylor & E.L. Taylor, and P. Woltz.

Send 125FF and money for postage to: Societe Botanique de France, rue J.B. Clement, 92296 Chateaufort-Malabry, France.

BOOK REVIEW

PALEOPALYNOLOGY. A. Traverse. Unwin Hyman, London, 1988, 600pp. hardback UKL50.00 ISBN 004 561001 0 hb, paperback UKL24.95 ISBN 004 561002 9 pb.

To write a complete textbook - more than that: a handbook - of paleopalynology, covering the entire subject in time: from the Precambrian to the Holocene, and in taxonomy: from unstructured little blobs to pollen grains of Compositae, and also from academic research to practical applications, that would be an excellent idea for an editor who could collect a team of experts to chew out one little bit at a time. For one person to write that book should be very difficult indeed. That it hasn't been impossible is shown by the book lying in front of me. The fantastic part of the story is that the author masters his theme out of personal experience from all the extremes mentioned above and many in between. Also, he can write about them in a personal way, sometimes almost lightheartedly without ever losing his grip on realities. That at any rate would never have happened in a multi-author handbook.

The book is based upon the author's course in the subject at The Pennsylvania State University and, I presume, is intended as a back-up for that course. I want to stress, though, that it is not encumbered with all that inefficient wordage that clutter up so many American textbooks and make them unusable for those of us who are accustomed to more concise treatments. I am still wondering what that course is like. Even if it comprises only a fraction of the subject matter of the book, it must be a formidable one, indeed.

Since the book is all-embracing, there will be chapters

that we do not need or think that they have been superficially treated (we know much more about these matters!), but I feel quite confident that every one of us will find some chapter telling things that we ought to have known, but haven't - or have forgotten. My very bad conscience about acritarchs is greatly relieved after reading the relevant chapter, and I think very, very many paleopalynologists should take time to read what Traverse says about nomenclature. Not that it is a cheerful subject, but whether we like it or not, it is there, and the Code of Botanical Nomenclature is there. However much we may disagree with it, the most stupid way to demonstrate that disagreement is to neglect the Code and contribute to a confusion that is bad enough as it is. Through his commitments in various bodies within the Nomenclature clan, Traverse is a reliable guide in the name-jungle.

He has also taken care of terminology in a Glossary (30 pp.) defining the useful terms, both in morphology and stratigraphy. (Continuing the ever-present error of writing annulus = little year instead of anulus = little ring).

The book is based upon a laboratory course. This gives it an excellent practical touch, and the descriptions of laboratory equipment and routines are eminently recommendable. Some items have been arranged in a way which might have been changed if the laboratory point of view had been less prominent. After two introductory chapters, chapters 3 and 5 deal concisely with general biological matters such as morphology. Then one has to jump the following main part of the book to find in chapter 17 the rest of the biology of

palynomorphs concerning transport etc.. If anything, I should have left the morphology till the end, as dispersal is so important for the interpretation of results.

This reflects the absence, in the book, of an ecological aspect. It is a book written by a geologist for geologists. The ecological aspect, which is so overwhelmingly important in Holocene palynology is, naturally, more difficult to practice in older formations and the omission is therefore a natural consequence of the general concept of the book. The Holocene is treated as an interglacial, interesting and thought-provoking.

The illustrations deserve a few words, especially those in which Traverse has managed to squeeze together, in a not very large page, some 40 or more illustrations of sporomorphs. I am not convinced that all of them are easy to use for a beginner, even if an experienced palynologist (that is, one experienced in that group) will undoubtedly recognize the types. I had almost said in spite of captions stretching over three pages. It speaks very highly for the technical execution of the book that even the cluttered up diagrams (like Fig. 10.1) are still readable.

I stated in the beginning that the book was lying in front of me. I may add that it was after a hunt for it in the microscopy lab., and I am quite positive that the next time I need it, there will be the same hunt. This book will not go to rest for a long time!

And all that written by one man on the basis of personal experience!

K.FAEGRI, Bergen, Norway.

LETTERS OF APPRECIATION OF THE LATE S.V. MEYEN

These appreciations to the late S.V. Meyen were sent to the IOP office in February 1989. Without question they are the only publicly-available records of Soviet palaeobotanical life during the middle of the 20th Century.

They were submitted to the IOP office in the form of typed English text. The IOP Secretary has edited these originals, to try and improve the grammar, and to remove some of the repetition that was inevitably present in such a collection of papers.

There is a well-known opinion, that no one can comprehend the unbounded. It can't be that one man knows everything or has interest in everything. However, S. V. Meyen himself has formulated a law, which can be named the **law of equivalence of the sum of knowledge**: 'All people know equally much - either a cook or a great scientist, but every one of them in his own region'. It's a senseless task to compare the sums of knowledge. But some people can be met who know everything or almost everything. They are of two sorts: either superficial persons, grasping from the surface the most easily accessible and seeming to be erudite only among the incompetent public. To demonstrate their knowledge

they choose an audience, which isn't prepared in the elucidated question. The others are seldom met natural talents, who have been lucky to penetrate into a certain methodological secret. They are possessors of the universal idea, which can serve as a key to the understanding of a vast number of particular scientific regularities at once. S. V. Meyen belonged to the second category as the author of a new epistemology - with the help of sympathy, participation and assistance.

It seems to me now that it has been only time which has prevented him from discovering how to know truly everything. In order to be persuaded in it, he had to think about everything successively and in time, and death in his prime prevented him from achieving this.

The problems of palaeofloristics, and theory of evolution, have persistently hinted at the fatal inevitability of contiguity of S. V. Meyen with the problems of phytosociology: the environment of any species in all times firstly consisted of his neighbours in the community. Evidently this fact has been completely ignored by adaptationism, now dominating the theory of evolution. As an illustration S. V. Meyen used its (of adaptationism) thesis on the

greater adaptation of angiosperms in comparison with the gymnosperms. "But how can the domination of coniferalean forests on the large territory of Eurasia and America be explained? Simply, so people say, who have not been in the forests near Moscow for a long time" (in Russia the lion's share of forests are conifers).

And nevertheless the inevitability has come to be true. From an accidentally dropped phrase in 1983 it followed, that S. V. Meyen had read the book "The Laws of biocoenosis dynamics" (Moscow, 1981) by S. M. Rasumovsky, but later it became known, that it was different. Yet in 1985 he had rejected the attempts of geobotanists to excite his curiosity of phytosociology. They flattered themselves with the hope that his unique mind would touch their conceptually fairly impoverished science, but S. V. Meyen was implacable: "phytosociology wasn't mine, I couldn't gain an understanding of my own things in time. But already at that time they felt that his own would make him surrender."

It happened in 1986, when he acquainted himself at last with the book of Rasumovsky, about which he wrote to B. M. Mirkin. The book of Rasumovsky is hardly known in the West, and so there is a need to say some words about it. In fact the ideas of F. E. Clements on the determination and coincidence of successions are expressed in it, but in such a new form (according to the terminology), that it differs from the prototype the same, as insufficiently elaborated initial ideas differ from a complete theory. It has been sharply placed on the basis of ideas of the thermodynamics of equilibrium. Mathematicians, zoologists and many soil scientists have simply loved the book, whereas the absolute majority of Soviet geobotanists were maliciously up in arms against it. The first were won over by the rigour and the first in the world exposition of geobotany, understandable to an exact mind. The second and the third saw in it a universal procedure to roll up ecological space, which they needed in their researches. And the fourth, as it seemed to me, were impeded by the strong emotions (everything seemed too unusual) to examine the essence of the matter. This or that way, the estimates of the book were petty and superficial. It was only S. V. Meyen gave a worthy assessment of the book.

Neglecting details, exasperating the geobotanists, he had probably seen the main ideas. Evidently it was for the first time that from Physics to Phytosociology that the logic of ideal gas was transferred. The behaviour of ideal biocoenosis in ideal conditions was investigated (in the mind, certainly). Though being in many positions imperfect, such an attempt gave an example of the use of completely new methodology in phytosociology. Having found this contribution of the Rasumovsky's book, S. V. Meyen favoured himself with the progress of phytosociology, because he showed to its specialists on what and how they had to rack their brains seriously, and what, despite a century of efforts, was of a secondary character.

K.O. KOROTKOV, Moscow, USSR

In December 1963 in the Polytechnical Institute of Tomsk there appeared a lively ox-eyed boy - Seriozha Meyen, who came with a report on the microstructure of Cordaitean leaves in his Cand. Sci. dissertation. The report at the University attracted great interest. But, as I remember, the staff scientific public of Tomsk was shocked by the smartness and naturalness of his speeches, about which there were a lot of talks. Later he made reports in Novosibirsk and Novokuznetsk, where, as he wrote, "the reports were received with considerably better opinion. I paid attention to the wishes of your old people and did the report so seriously that a girl laboratory assistant fell asleep in Novokuznetsk and in Novosibirsk somebody had a difficult struggle with the sleep. Instead of this, more interested people didn't sleep and listened attentively."

As for me I was in a desperate situation as an aspirant without an advisor (who had died some time ago), without any material, but with the general direction: the microstructure of fossil plants. During three days of S. V. Meyen's stay in Tomsk everything settled down in a most wonderful way. I was offered guidance on the material for the first time. He was convincing already at that time, when everybody knew almost nothing of him, and he was not yet a candidate of sciences. I didn't hesitate a second, that everything would be all right and I wasn't mistaken. It was one of my greatest

pieces of luck in life.

Half a year later I was in the Geological Institute in Moscow, where S. V. Meyen, sitting near to me for the whole month, introduced me to a whole series of problems. After the event I understood that this was a serious sacrifice on his side, because he had to finish his Cand. Sci. dissertation and to prepare for publication the works of M. F. Neuburg, who recently had died. Nevertheless his capacity for work was simply fantastic.

And after that there were 23 years, during which he became a scientist with an all-Union and international reputation, but he remained the same simple man in personal contacts as before. Though he was really a very unsimple man. From those years remained a lot of letters and the memory of those not very often meetings, and certainly, the invaluable help. It was a personal contact with a scientist and a man, and I didn't know which was more important, maybe the second. And it was also a luck almost for a quarter of a century. And always near to him was his wife M.A. Meyen, Rita, without whom he couldn't have managed to do all that he had done.

L. V. GLUKHOVA, Krasnoyarsk, USSR

I got to know S. V. Meyen in 1974, when I studied in the 8th form of a secondary school. Before entering the Moscow State University I visited him at the Laboratory in my free time. S. V. Meyen showed me fossil plants, which he studied at that time. Sometimes he entrusted me with easy figures for his publications. Usually I conducted a laboratory assistant work (I numbered specimens, wrote label for them etc.). I had interest in the theory of evolution and on my very first visit to S. V. Meyen he completely impressed me, having put forward irresistible arguments against the traditional Darwinian conception, given in the school textbook.

The laboratory assistant's work formed the most interesting and pleasant part of my attendances of S. V. Meyen. He used to repeat a rough aphorism of the deceased academician J. A. Orlov, that a palaeontologist should have a lead bum and golden hands. The routine work was a kind of check on the professional fitness: working in the limited material environment, often deprived of the help of a qualified laboratory assistant so they should be able to do all technical work, beginning from the numbering of specimens and ending by their photographing and typing their own manuscripts with a typewriter.

M. F. Neuburg, the tutor of S. V. Meyen in palaeobotany and the most prominent figure at that time among specialists on the Upper Palaeozoic flora of Angaraland, told him reasonably: "Life is a fight. We must fight for the right to work" Under her advice S. V. Meyen worked for 4 years until her tragic death in 1962. M. F. Neuburg was a severe teacher. This was what S. V. Meyen wrote, remembering the joint work with her (in the collection "Pages of history of the Moscow school of geology", 1985, pp. 62-77). "Not long before graduation for the University I received a suggestion from her to come to work under her guidance and accepted it without hesitation. The severe conditions were put for me and the promise to observe them was taken. The major condition was that I'd be only her pupil. This meant that I couldn't get in touch with anybody without her permission. The second condition was the lack of independence until she gave it to me. Concretely this meant that for an indefinite period of time my duties would be only those of a laboratory assistant - to draw and register specimens. The right to work independently I could receive only after mastering (reading without a dictionary) in English, French and German (ibid., p. 74)".

"Soon M. F. Neuburg charged me with some paintings for her publications. The work was very hard but M. F. Neuburg didn't speed me up. The main point was that I was sitting and working, that the result was good. If a drawing satisfied her she put it aside mutely and charged me with the next one. The number of times when I heard praise from her over the four years of work was no more than the number of fingers on my hands. The well-done work, for her, was a norm which is senseless to praise. And miscalculations had to be severely punished. The work over the collections, most careful inventory of specimens, labels, lists, numbers, photos, drawings, geological documents - all these were made a cult. Here any fault, any small carelessness like a vaguely written digit was not admissible" (ibid., p. 75).

"I had to know myself the necessary new publications, old articles and books. The access to the card index of M. F. Neuburg was closed in the literal sense of the word: her card index was locked during her absence. I spent much time to search the information, which could be easily got from M. F. Neuburg. She knew it, but never hurried to help, to save my time. I had to leaf through a mass of publications, which I had to get to know voluntarily or involuntarily" (ibid., p. 75-76).

"From her co-workers M. F. Neuburg demanded a model order on the working tables. Once I left the Institute having forgotten a microscope standing on the table, though we had to put it away every day in a special box. On the next day a piece of paper with a huge question-mark on it, hanging on the ocular tube of the microscope. This was the first warning, the second one was not needed" (ibid., p. 76).

"In the summer of 1959 I gathered my first collection in an independent expedition in the Tunguska basin. I wasn't given time to work on it, I had to find it myself. Only from the middle of 1960 I received from M. F. Neuburg some time for personal work. A part of my laboratory assistants' duties was given to others. We began serious professional conversations with her. The first results, obtained by me, were discussed" (ibid.).

"It was time to publish something. On the first article (on the bark of *Angaran cordata*) I had to work hard. M. F. Neuburg rejected the manuscript, but what had to be corrected she didn't say. This was also her style. In her imagination to guide didn't mean "to lead by the hand". She went as if from behind, looked at the path of her disciple, scolded a little sometimes: "Not there" - and she didn't say anything more. The disciple could practice only the method of test and error until he found for himself the right direction. This cost not only time, but nerves. Only many times later I understood, that she didn't strive to teach me palaeobotany. She taught me to work independently. Only in the last year of our joint work M. F. Neuburg began talking encouraging words to me. Being herself conscientious and hard-working, M. F. Neuburg approached people in the same way. The general spiritual atmosphere of those years, when for very many people the common collective work and the institute planned work were more important than anything private, was supported by her. She attached to the diligence and honesty such a great importance that she couldn't excuse the damage to the quantity and quality of work caused by private reasons" (ibid., p. 76).

Personal contact with M. F. Neuburg was a serious lesson for S. V. Meyen both from positive and from negative sides. The work took the main place in his life, but he didn't convert this circumstance into a measure of moral estimates for his colleagues. There are values incommensurably higher than the cognitive values, one of them is a human personality. Not a scientific truth, even most lofty, doesn't cost the humiliation of a man. In application to scientific discussion this means that you should always strive to understand and to justify the point of view of your opponent. Only this way one can you estimate the positive content of any scientific ideas, including the new ones, and not to fall down to the immoral suppression of the personality of the opponent (Meyen's "principle of sympathy"). The activities of a scientist are driven by interest. People are allotted this value to different degrees, but even the smallest tongue of this God's flame as a particle of personality has an unperishable value and should not die away. S. V. Meyen with all his efforts tried to support the cognitive interests in his disciples, colleagues and persons, with whom he associated. The best means for this he saw in the comprehension of the everyday work within the frameworks of the conceptions of a rising degree of generality, exceeding the bounds of palaeobotany and biology and entering the realms of a general philosophy. His outstanding talent and extensive knowledge, which he shared generously, enabled him to do this.

After the death of a teacher his disciple inherits not only his deeds but often his attitude to the surrounding people, including the co-workers. The latter perceive him involuntarily as the successor of "traditions" of these relations. S. V. Meyen had received a heavy "heritage". The palaeobotanists, dealing with the Upper Palaeozoic flora of Angaraland, were divided into two camps - that of M. F. Neuburg and of G. P. Radchenko, the animosity of which far exceeded the boundaries of scientific polemics. There couldn't be a question of normal scientific contacts: the achievements of

"scientific enemies" were not infrequently ignored as deliberately, not having any scientific value, the works were conducted in the definitely strict "traditions", blessed by the Head of the corresponding "camp". There were even attempts to represent the opponents' scientific activities as politically harmful. After the decease of M. F. Neuburg S. V. Meyen had undertaken enormous efforts to normalize the relations among the soviet palaeobotanists and didn't stop this until the last part of his life. The beneficial influence of this activity is experienced already by the palaeobotanists of his generation. In the life of S. V. Meyen one can distinctly see the adherence to the maxim of the Christian morality, which he, being an orthodox believer, professed in words and deeds in his own, sometimes non-orthodox way.

I. A. IGNATIEV, Moscow, USSR

S. V. Meyen called me his "palaeobotanical sister", having in mind that we are "children" of the same "mother", M. F. Neuburg. For the first time I saw him in 1958 when I came to Maria Feodorovna. He was a thin modest youth with a nice face, doing laboratory assistant's work. M. F. Neuburg presented him to me as her new research worker and then asked me my opinion about him. I answered that he was a very nice and diligent boy. At that time I could not think that over the next 15-20 years this boy became the most prominent palaeobotanist of our country and one of the leading scientists of the world: that soviet palaeobotanist who both older and younger generations, would be lucky to associate, to consult and to work with.

Gradually S. V. Meyen had become our leader and had won our trust and love. We were always surprised not only by his vast erudition and diligence, but by his wish to help in work, by his well meaning attitude to his colleagues. It was what we, the oldest generation of soviet palaeobotanists, unfortunately didn't get used to. He spared his time for others although he was very busy.

My last memory is of him on crutches, smiling with his wife. That left me with a lump in my throat understanding that I would never see our dear man again.

M. I. RADZENKO, Alma-Ata, USSR

I remember S. V. Meyen from my school years, when he came to Novosibirsk. Naturally, the palaeobotany and numerous colleagues of my mother didn't interest me very much. I remembered S. V. Meyen, because he came at once to understand all my problems. He chose a fashion of shoulders for the school leaving ball, showed me "pas de Charleston", which I was mad on (they said he danced it masterly). Everything of anything he spoke about I always remembered: "Ritka and I.....". He said it so, that this Ritka seemed to me so extraordinary, strange and even on a kind of "pedestal".

Later, when I met Ritka and got to know S. V. Meyen better I understood that "Ritka and I....." - this was a leitmotif of his life. And a unique ability to enter quickly into another's problems, to feel another's pain, to take it to himself. This was also was with him for the whole of his life. It is quite like the parable: the most important man is the one who needs you now, the most important occupation is what you are doing now, and the most important minute is that which lasts now.

Because of this many people, who were friends or in another way touched S. V. Meyen, had a feeling of being special. I also thought, that I took a special place in his life. Later I was convinced, many people thought the same. I know several of his disciples, who personally considered themselves as the "most beloved". Yes, probably, he was like this (I remembered the funeral of a nun, when all the accompanying persons cried and said one and the same: "How she loved me! More than all others!")

One can write an essay about the attitude of S. V. Meyen to correspondence. At one time there existed such a branch of culture called epistolary. I touched it only through S. V. Meyen. I do not mean the content of his letters, but about his attitude to correspondence.

We wrote to each other irregularly. In fact at several times in my life, in certain key situations, I wrote letters to him. At first these situations touched scientific problems, later more serious problems of interrelation with the world and the people. He always

answered me at once, every time amazingly. I was astonished where he could find such a lot of time for me alone. One day I came to S. V. Meyen at once after a holiday. He hadn't yet looked through the correspondence and he showed me a meter high. I don't exaggerate. We measured it together those reams of correspondence. And this was from a month. Let half of them be reprints, let them be 90%, but they were all to be read, to be answered to, all. Well, he answered without delay and, if he couldn't do it at once in detail, then shortly.

I know that during many years S. V. Meyen believed that the good was relative. That there were people who were to be nipped in the bud. "Alas", - answered he, - "there are no criteria to define for sure the evil in the bud, and until the last breath this evil has still a chance".

Probably, every one of his acquaintances and close friends received his own heritage. I remembered: personality and Goodness are absolute as the sun, with the equal force they throw light and heat all, either "worthy" or "unworthies". It is in this that there is a unique chance for the "unworthies".

N. G. GORELOVA, Novosibirsk, USSR

In an autobiographical book, dedicated to the teacher of S. V. Meyen in the field of biology, A. A. Lubischew, there are the following lines: "A scientific fact itself doesn't play a decisive role. Though facts are 'the air of science', it's impossible to live on this air. The facts obtain scientific values only within the frameworks of a comprehensive scientific theory". I quote this statement not by chance. It is, in my opinion, very consonant with those ideas of epistemology which had been developing within S. V. Meyen.

I got to know him in the 1950's. He engaged me at the laboratory of palaeofloristics of the Geological Institute (GIN) to work on his long ago planned theme, touching the genesis of Arctic floras. However S. V. Meyen didn't let me into his plans just at once. The natural tact in connection with an outstanding intelligence allowed him to bring his "ward" up to that without visible interference. At the beginning of my activities I proceeded to work at my old theme of palynostratigraphy of Cenozoic neotectonical depressions of the Far North-East of Asia. At that period we used to talk with S. V. Meyen on the possibilities of palaeopalynology in the solution of the problems of biostratigraphy, palaeoclimatology etc. One day, he asked me: "And to what are your investigations reduced? What problem in general do you want to solve?" I was evidently not ready for this and started to reply in a confused manner about the meaning of stratification of the Late Palaeozoic continental deposits of the North-East Asia for searching the precious metal-placers. At that time I was still under the impression of the searches of Tertiary deposits, in which (according to many generations of prospectors) there had to be the unprecedented supply placers. Truly this resembled the searches of the "Unexpected Lake" by the heroes of Jack London at the time of the "gold-rush", but then I didn't think about it. S. V. Meyen listened to me attentively and said, that it was to an extent also a goal. After a small pause he added: "For me a real problem is characterized primarily that along with its solution even more challenging problems rise".

Soon after this he asked us (some of his "boys" and me) whose names came to our mind in the first place when we speak about Tertiary palaeobotany. We started to name A. N. Kryzhtovich, O. Heer, A. Gray, A. Nathorst, I. V. Palibin etc. To this S. V. Meyen marked: "Strangely, but it occurs in my memory for some reason first of all Tolmachov, Popov". "But these are floristic botanists and biogeographers, who don't have any relation to palaeobotany!" - this was our first reaction. "Which of them have you read?" - asked S. V. Meyen. It was awkward to continue the conversation, because with the exception of "Flora of the Middle Siberia" by M. G. Popov and several articles of A. I. Tolmachov I hadn't read anything. S. V. Meyen pretended that this wasn't surprising for him, and he said, that he would bring me all the works by these authors, which were in his luxury home library.

E. V. ZYRYANOV, Moscow, USSR

At secondary school S. V. Meyen learnt to be a cellist. At the beginning of the 1940's his family was exposed to repressions, and the way to higher education was closed for him. Music had to give

him a means to live. Being a school-boy in the senior classes S. V. Meyen and his friends organized a Jazz band. At that time Jazz music was prohibited ("Jazz is a friend of the bourgeois hell - those, who listen to it are losing their productivity of labour" - wrote the official sources at that time), and the boys gathered to play secretly. By chance this came to be known, and the participants of the concerts almost lost their places at school. The love of jazz S. V. Meyen kept until the end of his life. When he was in high spirits he most often whistled a melody from the movie "My Fair Lady". In his youth S. V. Meyen was seeing all the films with Gina Lollobrigida, Sophia Loren and Audrey Hepburn starring. The photos of these movie stars laid on his working table under a sheet of glass in the Institute. But once he was a scientist he practically didn't go to the cinema and very rarely saw TV transmissions with the exception of the evening news.

He was reading mainly the scientific literature, and in order not to lose time he was doing it even on his way to the Institute or home. He had his favourite literary works, among which was "Master and Margarita" by M. Bulgakov.

S. V. Meyen worked practically without breaks. Saturday and Sunday he named his most productive days, and this wasn't an exaggeration. His favourite place of work at home was a bureau, which belonged to his late father, heaped up with books, papers, pencils and other small things. Despite the external disorder he knew perfectly where anything was, he could find any object with closed eyes. No one was allowed to put things on the bureau "in order".

S. V. Meyen had always planned his work in advance, nearly day by day. The coming ideas and questions he noted in a special diary. He demanded the same from his disciples: I had to write down all my questions coming to mind. "You may later find the answer yourself", - wrote S. V. Meyen to me in one of his letters, "but all the same you should write it down. It is very important. Because that's how the study in palaeobotany is conducted: a disciple shows all the unclear things to his teacher. And this is the main way of teaching, because in the systematic lectures they give only a-b-c. Such questions are also very important for me, because in another way I can not understand a problem. And in this relation you have to forget the inconvenience to worry me".

In the last years of his life S. V. Meyen used to tell me that he felt himself to be left little time to live and he had to be in a hurry in order to end what he had begun. When I tried to dissuade him from it, he answered: "I am not at all afraid of death, but there is work to be finished".

H. G. SMOLLER, Ukhta, USSR

In 1959 I visited M. F. Neuburg. Maria Fedorovna, as if thinking aloud, said that Seriozha was starting to work, but when would something come from him? The prognosis of M. F. Neuburg to everybody's satisfaction didn't come to be true. Very soon S. V. Meyen became a Candidate of Science and a visible figure among palaeobotany.

On the eve of the proof of his C. Sc. dissertation (1964) S. V. Meyen arrived at Tomsk. Early in the morning I came to the institute. Near the office I was awaited by an unknown man, who presented himself as S. V. Meyen. Probably from M. F. Neuburg he had got to know that I had two small children, and he brought some mandarins (mandarins were very seldom met at that time in the cities of Siberia). Such attention was striking. He went to great trouble for entirely unknown people. Soon after a short professional talk we started speaking on different themes. The talking concerned dancing. At that time there was an overall passion for the Charleston. "Do you dance?" I asked. "Yes", said he, and there in the office we danced the Charleston. He was simple, open-hearted and benevolent.

He became a man of erudition and even more: he proved his Doctor of Sciences brilliantly, he became a star in Angaran and World palaeobotany.

M. D. PARFENOVA, Tomsk, USSR

Working under his supervision I constantly felt his attention and support. He was asked many questions and always had a detailed answer. I have been struck by his vast scientific outlook, width of

interests, the talent of popularising palaeobotany, the great scientific authority among palaeobotanists not only in our country. But in spite of this I never felt myself restrained in his presence. He didn't suppress by his authority but on the contrary after the talks with him the inflow of strength had been the wish to work. I recalled how Sergei Viktorovich checked my English in practice. He asked me to help in translation at one of the international meetings of palynologists. He watched me working and then secretly went out so that I hadn't noticed his going away immediately.

S. V. Meyen was a very cultured, well-brought up, tactful person. In his presence I felt myself to be not only a scientist but a woman. The same qualities he inspired in his pupils.

E. I. POLETAEVA, Syktyvkar, USSR

I began to study palaeobotany in 1963. And there I was lucky. During the first meeting I saw a young man, very benevolent, energetic, ready to share with knowledge, materials and skill, and he was almost my age. Sergei Viktorovich wanted to take off all official conventions and suggested to address to each other by familiar names. In such a way he established a friendly confidential relationship, which played a great role in future work.

He was a man of encyclopaedic knowledge and high erudition. We, the palaeobotanists, knew that and often addressed him with different questions. The answers received were always detailed and without delay. And this is under his great pressure of work.

One time, in spite of bad weather, I went to work with S. V. Meyen at the section of the Tatarian stage on the Sukhona and Severnaya Dvina rivers. It was cold and wet and all of us felt it a great inconvenience. But our impressions remained bright because of S. V. Meyen. He was the soul and the centre of our small friendly and differently aged collective.

L. A. FEFILOV, Leningrad, USSR

I was lucky to know S. V. Meyen for 15 years, who helped palaeobotanists working in the industrial organizations of our country. His head was the fountain of information which he shared with those such as myself. I was perhaps the only industrial palaeobotanist who took the course of palaeobotany given by S. V. Meyen in the Geological Institute of the USSR Acad. of Sciences in 1982. This course of lectures formed the basis of his book "Fundamentals of palaeobotany" (1987). The lectures finished by dinner after which S. V. Meyen studied in turn with palaeobotanists coming from the periphery of our country about their problems. They looked through the collections till late evening. One day amongst my samples from the Ekibastus basin S. V. Meyen found for the first time in this region the remains of *Aulacotheca*. On the same bedding plane was pollen belonging, in his opinion, to these same synangia and being of the *Schopfipollenites*-type. Afterwards I succeeded in extracting this pollen directly from the synangia and proved his assumption. Those evenings we parted late at night. The next morning he would bring me lots of articles from foreign magazines with the descriptions of such synangia. The obligingness and the wish to help were the main features of his character. Due to his consultations the presence of a number of genera and species in Kazakhstan has been established.

Sergei Viktorovich had the long thin hands of a musician by which he could excellently prepare fossil plants remains. For preparation he used needles, medicine boxes, old pen handles, turning them into uncomplicated home-made instruments, serving his own purposes. His fantasy and inventiveness had no limit. He drew excellently, photographed and could give very valuable advice on both techniques.

And above all he wasn't afraid to admit his own faults. During the last years of life S. V. Meyen with a great interest followed the researches on Upper Palaeozoic stratigraphy of Kazakhstan, quickly going deep into the centre of the controversies. One example of such a fierce controversy was from the North Balkhash region. Here the age of Kungisayakskaya suite and its analogs had been dated as Middle Carboniferous by marine fauna and as Permian by flora. In 1985 at Alma-Ata there was a colloquium to make clear the disagreements between palaeozoologists and palaeobotanists. S. V. Meyen's position was unexpected for many present. In his report he spoke out in favour of the marine fauna

data and in disaccord with his initial views on this subject. This point of view he mentioned in one of his last letters to me: "I am afraid, that by neglecting the fauna data and counting only on the habitual flora ones, we have let escape a very interesting thing: the true appearance in the middle Carboniferous of the "noncoalbearing" flora, which spread in Europe already in the Permian. It can become one of the most interesting palaeobotanical discoveries of our century". For us, his followers, it is the order of further work. And the motto of the work must be his words: "There where the doubt finished, the science finished".

L. A. GOGANOVA, Karaganda, USSR

I first heard about S. V. Meyen from the Head of the Geological Museum of Kazan University T. A. Tefanova who studied the Permian flora of Tataria. Sergei Viktorovich as a student of Moscow University visited our Museum and acquainted himself with the palaeobotanical collections. Then his acquaintance with T. A. Tefanova took place and the correspondence began. Being the student of a geological faculty I began to work on the Kazanian flora of the stratotype region. It was practically impossible to continue this work without consulting S. V. Meyen. When I gave the definitions to the Kazanian co-ordinates I decided to show them to S. V. Meyen and departed to the Geological Institute. I was very agitated. I came to the famous room N215 in the Geological Institute and knocked on the door. A young man with very alive and kind eyes opened the door. I asked could I see Sergei Viktorovich Meyen? "It's me" - he said very simply. My surprise was boundless because I for some reasons waited to see a solid old man with a beard. But soon the surprise changed to admiration. It turned out to be that the whole work on the Cordaites ought to be done from the beginning. Because of their classification it was necessary to take not only the gross morphology of the leaf but also the presence or absence of dorsal furrows and other microstructural characters.

The depth and breadth of his interests were sometimes simply striking. He was equally qualified in problems of palaeobotany, stratigraphy, botany and many other fields of knowledge. I was lucky to attend his lectures for biological teachers in the Moscow Pedagogical Institute at 1983. There were few listeners, about twenty persons. But how Sergei Viktorovich delivered his lectures on palaeobotany! Just as when he had a large audience: very consistently, clearly and with confidence. In short - brilliantly. His ability to switch over from one work to another, to study two or three groups of plants simultaneously was striking. He was fond of working. He did it with great animation and could influence other people. Sergei Viktorovich generously shared with his knowledge and ideas. It seemed that he followed the Eastern wisdom: "He is happy who entertains well but not who eats repleately". Having a solid theoretical baggage he did not allow himself to live only on conclusions and generalizations". The enormous factual material was always at the basis of his work.

Benevolence and honesty were remarkable features of his character. S. V. Meyen respected not only palaeobotanists who brought their contributions in general work but also the young beginners who were in need of support. As his post-graduate I often had a guilty conscience to disturb Sergei Viktorovich from his work because he took any minute into account. But nevertheless S. V. Meyen practically never refused to help when he saw that the help was necessary. And if he promised something one could be sure that he would do it in spite of everything. He gave just the same example of benevolent and honest relations for everybody who knew him. He gathered together all palaeobotanists who studied the Late Palaeozoic flora in our country. He organized colloquia on Palaeozoic plants in Moscow, Leningrad, Vorkuta, Syktyvkar, Kazan and Alma-Ata. They were always unforgettable meetings. Besides the palaeobotanical information we got the joy of contacts.

N. K. ESAULOVA, Kazan, USSR

A long time before fortune brought me to the world of science I heard from the graduate students of the Moscow Institute of Exploration Geology enthusiastic opinions about the lectures of S. V. Meyen. At the same time I had a chance to read his popular scientific book, which struck me with easiness and simplicity of treating the

subject, which made at once the "scientific luminary" earthy and accessible. Maybe because of this, despite the halo of fame surrounding this man, since our first day of acquaintance I felt myself near him very freely. Quite really estimating the level of my knowledge I could understand the gap between us, but never in the personal contact with S. V. Meyen. I wasn't afraid to show myself as ignorant and foolish. I could talk to him on any subject. I was always struck by the seldom-met gift of the attentive listener in S. V. Meyen. In any scientific problem, even very far from his interests, he went deep into it as if at the moment there was nothing more important for him. Any request he answered with such a readiness as if he had dreamed for all his life to implement it. Sometimes it seemed to me, that nothing else existed for him but another's trouble and pain which didn't touch him. Under this emotionality, which was inherent to S. V. Meyen, it wasn't difficult to guess how much living energy this attitude towards people took from him.

He was a brilliant orator and, addressing the most distinguished audience, he never showed the slightest sign of agitation, and then, like a rather shy boy, he couldn't conceal the pleasure, listening to the compliments on the report.

The scientists of such scale are often cautious in praising the works of the others. It was the more so wondering as to see, with what a delight he perceived any original solution of a scientific problem, however brilliantly done. He knew how to argue and was upset when another's tactlessness and rudeness lead to a quarrel between colleagues. His talent to associate with very different people as an equal, not turning to anyone and always remaining himself, his very keen feeling of tact, obviously, were characteristic for the representatives of natural Russian intellectuals. This has not always been the case for these people during the last decades, unfortunately.

N. B. VERKHOVSKAYA, Vladivostok, USSR

S. V. Meyen was the successor of the best traditions of outstanding scientists characterized by the breadth of views, many-sided education and profound understanding of fundamental problems of science. The characteristic peculiarity of S. V. Meyen's creative work is the combination of naturally scientific and philosophical cognition. In particular he paid great attention to the elaboration of methodological principles of natural science. The main aspect of S. V. Meyen's creative work was moral. He suggested that the capturing of the mystery of nature was not the end in itself, but that what is important is the way of the scientists own moral position.

His excellent human qualities such as simplicity and benevolence created the great authority for him among Soviet palaeobotanists and geologists.

I recall my acquaintance with S. V. Meyen which took place at the end of the 1960's in Leningrad on the session of the All-Union Palaeontological Society. In the interval between the meetings he came up to me, presented himself and said that he had decided to study floristics, but Kazakhstan and Middle Asia were the "dark forest" for him and he wanted to get some information. I said that our flora was in main degree the "dark forest" for us also, but we welcomed fellow-traveller. We worked at different, very distant, regions but our correspondence promoted to the creation of an atmosphere of close contact and collaboration. The letters of S. V. Meyen always contained detailed discussions on material. He generously shared his ideas and information. In spite of his business and time limitations he gave detailed answers on all questions together with literature and specimens.

S. V. Meyen, as nobody else, could create the atmosphere of benevolent collaboration and care of colleagues. As a man of enormous capacity for work and of the highest professionalism he was an indefatigable generator of ideas which "infected" his neighbours. His simplicity made contact with him very easy, accessible and sincere. Don't lose any idea and make any idea as a subject of discussion - this was the main principle of his work which combined his enormous abilities.

Once I was very touched by a letter enclosing a dried leaf: "I send

you the leaf of an orange. It has the same glands on the border as in your new fossil genus."

An outstanding scientist, energetic and cheerful, benevolent and frank, a man with a delicate sense of humour, S. V. Meyen left a bright and good memory about himself and also the sharp feeling of bitterness about his untimely death.

K. Z. SALMENOVA, Alma-Ata, USSR

Palaeobotany is the basic but not the only science where the phenomenal talent of S. V. Meyen has been displayed, although all fields of his knowledge were branches of a tree with palaeobotanical trunk. He went from concrete systematics of fossil plants to typology as a part of theoretical biology, from analysis of phylogenetical connections to general theory of evolution, from comparison of different conceptions in palaeobotany to pluralistic methodology of science, from observing the interrelations in palaeobotanists' society to some important principles of the ethics of science. S. V. Meyen achieved the highest perfection in each of these fields. His great deductive mind was like a magic wand - it created a miracle.

S. V. Meyen wrote equally easily for strict scientific papers and books and for popular ones. His papers for "Znanie-Sila" ("Knowledge-Force") give clear and detailed accounts and bring out the main element for this popularisation. Literary talent and humour underlined his outstanding personality.

S. V. Meyen spoke beautifully to an audience and liked to be heard by students or colleagues, teachers of biology or scientific seminar of academical institute and he was able to listen to himself. He used information from neighbouring fields of knowledge and instantly made analogies between conceptions of palaeobotany and spheres of geology and biology. The exchange of ideas between these sciences was very productive. It determined a wide circle of his friends who were in correspondence with him and who he contacted personally.

I first got to know S. V. Meyen, when he, as a member of editorial board of "Zhurnal obshchei biologii" ("Magazine of general biology"), had begun to extend the author's collective of botanists and he had looked through monographs on different problems of botany, published during the last ten years. He saw my book "Appropriateness of development of flood plain vegetation" and he found there the net-like scheme of successional connections of communities. I was impressed by his conceptions on the evolution of the organic world. He wrote a letter to me and proposed collaboration in the magazine. And he edited my papers very correctly and substantially during ten years. He stated in long letters many ideas, appeared after his acquaintance with appropriate vegetational dynamics. These letters were a stimulus for my further theoretical searchings. The presence of S. V. Meyen, with his wonderful talent, whipped up constantly an internal tendency to self perfection. Soon S. V. Meyen introduced me to a group of regular authors of the popular "Znanie-Sila" magazine with a high level of demand for the popularization style. So I got some progress as a theorist and a populariser under his unobtrusive influence. Our meeting is the greatest luck in my scientific career.

The influence of Meyen's ethics was very useful for me. He was an antagonist of passions, tension in scientific discussions, and even proposed his so-called "principle of sympathy". He was literally an advocate of pluralism in science and this was no less important for me, than stimulation of investigations in theory or of popularisation activities. Little by little I got rid (not at all, of course) of an earlier great confidence in the rightness of the platform of the science school which I belonged to and I was imbued with a spirit of the falsificationism of Karl Popper, whose works were very much admired by Meyen.

Meyen was like Prometheus, who brought a fire for people. This fire lit up a way in science for many people, with me among them.

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