INTERNATIONAL UNION OF BIOLOGICAL SCIENCES SECTION FOR PALAEOBOTANY

IOP NEWSLETTER 45

NOVEMBER 1991

CONTENTS

PLEASE MAIL NEWS AND CORRESPONDENCE TO YOUR REGIONAL REPRESENTATIVE OR TO THE SECRETARY FOR THE NEXT NEWSLETTER 42.

The views expressed in the newsletter are those of its correspondents and do not necessarily reflect the policy of IOP.

IOP NEWS

IOP GENERAL ASSEMBLY, PARIS SEPTEMBER 1991

Our Constitution demands that the newsletter gives at least six months notice of this meeting. It will be held during the first full day of the 4th IOP Conference, Monday August 31st, at le Ministere de la Recherche et de la Technologie, 1 rue Descartes, 75005 Paris.

The draft agenda is:

1. minutes of the previous General Assembly, Frankfurt 1990
2. minutes of the previous Executive Committee, Frankfurt 1990
3. a proposal for an IOP / Birbal Sahni medal
4. a proposal to dissolve IOP and replace it with a new institution that serves both palaeobotanists and palynologists
5. a review of progress in IOP's Plant Fossil Record database project
6. a review of the effectiveness of Regional Representatives
7. criticisms and comments about IOP's operations
8. any other business.

IOP CIRCULAR 10

Fossil Species of Modern Plant Genera: a first list for vascular plants Brown, S.M. 1991. 23pp. IOP, London. ISSN 0961-8325.

This became available in October 1991 and is available free of charge to those members who are able to volunteer to help with its revision for the second edition. It costs others $10.00. Write to the IOP Secretary for your copy. Make payments to your Regional Representative (NOT to London with cheques negotiable outside the UK).

AN OFFER TO HELP THE PFR PROJECT

Following considerable discussion at the Pan-European Palaeobotanical Conference in Vienna (September, 1991) it was decided to offer some new proposals in the hope that these may assist the survival of PFR. At present, constituent records are lacking in detail and are frequently incorrect. Much of this paucity results from the inadequacy of the initial data sources although it is accepted that a small proportion must inevitably result from typographical errors in the translation of data to the PFR format. As a result, although currently of some use, the full potential of the system is barely realized.

The combination of the NCU project with the construction of PFR for research purposes has led to confusion amongst potential editors. Many were unsure as to what was required and as a result, have failed in many cases to supply the type of information required. Although the NCU project is of importance, many Palaeobotanists view the completion of the PFR database as a far more significant issue. PFR is clearly of great potential value to Palaeobotany and related subjects. Its present degree of completion is totally inadequate for the demonstration of this potential to those less familiar with the concept of databases. Such was made clear at the PEPC, Vienna. A subset of PFR provided as a demonstration disk fails to incite great interest because of its small size although it too succeeds in illustrating the theoretical power of the system.

In order to remedy the problems stated above, the following proposals are offered.

1/ The organization of a volunteer group of Palaeobotanists to complete a particular section of PFR. The currently favoured section would consist of Palaeozoic macrofossils and spores/pollen, probably with emphasis on the Carboniferous. Although the present group of volunteers are willing to do all they can, it is inevitable that they will only be able to devote a small amount of their time to the project, none the less, progress will be made.

2/ An editor or editors must be selected to read each record and eliminate obvious mistakes. Clearly such a person should have a broad knowledge of Palaeobotany.

3/ A second round of letters should be send to interested parties, particularly those with expertise in Palaeozoic material. These letters should request, in a simple and encouraging way, further assistance with the completion of PFR records, this time with no reference to NCU and with detailed and clear instructions on what is required. Emphasis should also be placed on the completion of records familiar to the editor, thus reducing the need for lengthy consultation of literature. Editors should be asked to do as much as they can within reason'. Such editors who contribute a significant amount of information should receive a free copy of the Palaeozoic section of PFR at a later date (naturally with a request that any errors or absences be communicated to the chief editor).

3/ Active public use of the database should be encouraged. One possible route to wider recognition of PFR as a data repository might be its use as a 'museum' to house new generic names. In the same way as the location of types is cited in publications, a note might also be included to the effect that new generic names and details have been submitted to the PFR database. A note should be placed in the IOP newsletter indicating that this would be desirable.

If implemented, these proposals may provide sufficient impetus to PFR for its continued survival.

Alan R. Hemsley (London, UK)
Nick P. Rowe (London, UK)
Jean Galtier (Montpellier, France)

EUROPEAN BIBLIOGRAPHY OF PALAEOBOTANY

The review of this autumn's Vienna meeting, printed below, gives one view of how a new 'democracy' organised this venture. Dr B.A. Thomas, Keeper in Botany, National Museum of Wales, Cathay's Park, Cardiff, Wales, was not present at the Vienna meeting. Nevertheless, he has agreed to accept its decision for him to serve as editor.

Regional Assistants were appointed at the Vienna

meeting to gather information to the editor and to help with the distribution of the final product. They will be contacted by Dr Thomas very soon, with instructions of the format required and the deadlines for production. The bibliography will be available on a floppy disc medium and print-outs will be available through the Regional Assistants.

REPORTS OF RECENT MEETINGS

XII International Congress of Carboniferous and Permian Stratigraphy and Geology, September 22-27 1991, Buenos Aires, Argentina.

Each of the 230 participants representing twenty one countries agreed that XII ICC-P was truly an outstanding scientific meeting. With the leadership of Sergio Archangelsky this meeting brought together researchers from around the world interested in a variety of late Paleozoic geologic, stratigraphic and paleontologic problems. The scientific program included five days symposia, contributed papers and posters and ranged from regional stratigraphy to tectonics; Gondwana glaciology to fossil fuels. The organizing committee did an outstanding job in assembling a program that provided ample time for discussion, and that made it possible to move concurrent sessions with relative ease.

By my count there were forty paleobotanists/palynologists in attendance, perhaps the largest single discipline at the congress. Outstanding symposia included "Late Paleozoic Palynology" (convened by G. Playford) and "Late Paleozoic Phytopaleoecology" (convened by N.R. Cuneo). In addition, paleobotanists presented a variety of papers in other sessions ranging from Pfefferkorn's taxonomic computer revision analysis program to Mosbrugger's insightful discussion of the Cathaysian Floral Province. Particularly noteworthy was the paper on Lower Carboniferous plants from Scotland by Rachel Brown, a first year research student. All of the papers were of high quality and once again underscore the multifaceted approaches that are being used by paleobotanists around the world to solve important taxonomic, biologic, biostratigraphic, paleoecologic and biogeographic problems. It is anticipated that many of the papers will be published in the Compte Rendu.

An important component of this scientific meeting was the opportunity to select one of several pre and post congress field trips. For thirty one of us it was off to the extraordinarily beautiful wilds of Patagonia on a six day trip orchestrated and led by Ruben Cuneo and ably assisted by Ana Archangelsky. We covered more than 5000km on this excursion which included the opportunity to view and visit numerous outcrops and to collect a number of fossil plants. The hundreds of trees at the Tertiary Petrified Forest in Chubut and the famous Jurassic Petrified Forest National Monument were exceptional testaments to the past floras that once grew in Patagonia. And what about the food on an extended field excursion in Patagonia where one sometimes does not see another vehicle all day long? I need only to cite the wonderful hospitality of Jorgelina and Juan Zuneda who opened up their estancia for an afternoon asado of roasted young lamb and red wine to understand that the gastronomic needs of the participants were always well satisfied! The final two days of the Patagonian trip were spent as tourists visiting the Valdez Peninsula to view penguins, sea lions and whales, and to Trelew to view the extraordinary paleontologic collections being assembled in the new "Egidio Feruglio" Museum.

I am confident that the participants at XII ICC-P left Buenos Aires not only with new and renewed personal and professional friendships, and a keen enthusiasm for research problems associated with the Carboniferous and Permian, but also with a very genuine sense of appreciation to Sergio Archangelsky and his many Argentine colleagues who worked so hard to make these meetings truly outstanding.

T.N. TAYLOR, Ohio, USA.

Pan-European Palaeobotanical Conference Vienna 19-23rd September 1991.

This meeting was extremely well attended with 150 participants from 20 countries which is over double the attendance of other recent European meetings. The main reason was the fact that this was the first European palaeobotanical conference since the first decade of the century where about half of the potential participants were not excluded by political barriers. It is not an overstatement to say that it was a historic occasion and this excitement bubbled to the surface during and between the formalities of the meeting.

About 75 talks were presented with 11 Palaeozoic; 13 Mesozoic; 33 Tertiary and 18 Quaternary. Despite the huge range of nationalities, most communications were given in English with some in German or French. As might be expected there was a very large range in content, techniques and approach with innovative interpretations presented notably in biomechanics (Speck); exine ultrastructure (Hemsley & Galtier); plant taphonomy (Gastaldo); 3-D leaf morphology (Kelber); geochemistry of amber (Vavra). One of the surprises in the conference was a fossil lichen from the Jurassic of Germany (R. Ziegler). The conference was followed by two days of field trips in the east of Austria.

As is now common in meetings of this sort many discussions between the formal sessions of the conference focussed on the problems faced by palaeobotanists in Europe (a special announcement was made and a petition signed on behalf of the staff at Heerlen whose department is threatened with closure).

It is clear that there are many advantages in a now open Europe for exchanges between previously isolated research groups. Important steps in this process include the subjects raised in a session chaired by J. Eder-Kovar at the end of the conference. Firstly it was decided to set up a European bibliography which would operate by regional and national representatives who would collect material from workers in their region or country. This information will be sent to a central editor who will as-

semble the whole bibliography and then redistribute a complete version to Regional Assistants selected at this meeting. These spirited individuals were duly elected democratically and briskly, even if they were not all present to accept their new honours! Secondly, the time and place of the next European conference was discussed and an offer was submitted by palaeobotanists from the Netherlands for the next meeting to take place in Heerlen. This was unanimously accepted and the conference is expected to take place in 1994.

We now have a bibliography organised for the whole of Europe, and we have the next European conference and hopefully a series of meetings arranged for the future. The new bibliography aims to show us who is working on what genera, but the Plant Fossil Record (PFR) database will show a list of authors and main references for all plant fossil genera. At a time when we are arranging a new European bibliography the opportunity must be taken for specialists to contribute bibliographical information and to check and update the current bibliography in PFR.This was a conference where many problems and possibilities resulting from the opening-up of Europe were discussed and some of these were addressed with practical action.

On the last evening Johanna Eder-Kovar received a standing ovation and was toasted with wine drunk from beer glasses. She is to be congratulated for the timely organisation of this conference in Vienna where, not so long ago, the East met the West. We thank her and her staff for a very well organised, smooth-running meeting and for arranging the magnificent receptions.

N. ROWE, London, UK.

NEWS OF FORTHCOMING MEETINGS

4TH IOP CONFERENCE

AUGUST 30 - SEPTEMBER 3 1992, PARIS

The second circular is now available from the Conference Secretary Dr Denise Pons, Paleobotanique et Palynologie evolutives, Universite Paris VI, 12 rue Cuvier, F-75005 Paris.

As well as giving details of the conference itself the circular includes booking forms for gastronomic events, hotels, hostels and excursions. The pre-congress excursion is from 26-30 August to the Carboniferous and Triassic of northern France. The post-congress excursion is from September 3-6 in the Massif Central and Jura. The third circular will be available before June 1992.

2ND INTERNATIONAL SYMPOSIUM OF FOSSIL & EXTANT CHAROPHYTES

OCTOBER 5 - 15TH 1992, NANJING, CHINA.

The themes of the meeting include classification, evolution and global events, correlation with assemblages, palaeoecology, origin of recent genera, identification of fossils and suggestions for international cooperation.

Lectures are from October 5-7 and a field excursion from October 8-15 will visit the Cretaceous and Tertiary of Dangyang, Hunan and will look at the famous Zhangjiajie landscape.

Write to Wang Zhen, Nanjing Institute of Geology and Palaeontology, Chi-Ming-Ssu, Nanjing 210008, China.

XV INTERNATIONAL BOTANICAL CONGRESS

AUGUST 28 - SEPTEMBER 3RD 1993. CONGRESS CENTER OF PACIFICO, YOKOHAMA, JAPAN.

The first circular is available from International Communications INC, Kasho Building 2F, 2-14-9 Nihombashi, Chuo-ku, Tokyo 103, Japan. Dr Kazuhiko Uemura, National Science Museum, Hyakunin-Cho 3-23-1, Shinjuku-Ku, Tokyo 160 (Fax 81 3 3364 2316) has offered the following provisional plans for the palaeobotany presentations. Please contact him with useful comments.

The Division of Systematics and Evolution includes 11 sections; Fungi, Lichens, Prokaryotes & Algae, Bryophytes, Pteridophytes, Spermatophytes, Evolution & Phylogeny of Plant Life, Palynology, Floristics & Phytogeography, Molecular Systematics, Biosystematics)

Section 7. Evolution and Phylogeny of Plant Life

1. Evolution of Pteridophytes and Gymnosperms: Integrating fossil evidence.

Accumulate current topics on fossil pteridophytes and gymnosperms.

Organiser: Dr Gar W. Rothwell (Ohio University) Harufumi Nishida (International Budo University Japan)

2. The Impact of Environmental Change on Angiosperm Evolution.

To discuss angiosperm evolution: Cretaceous and Tertiary record of angiosperm evolution, floristics and vegetation from the perspective of environmental change

Organiser: Jack A Wolfe (U.S. Geol. Surv.)

Local convener: K. Uemura

3. Asiatic elements in Cenophytic floras.

Asiatic plants (may be mostly angiosperms) which are found in the Cenozoic and some Mesozoic rocks in the Northern Hemisphere are the main theme: to discuss their systematics, evolution, implication to floristic development, the place of birth and refugia, and palynological evidence for development and disappearing pattern.

Organiser: not fixed

Local convener: M. Minaki or K. Uemura

NEWS OF OTHER ORGANISATIONS

ARBEITSKREIS FUR PALAOBOTANIK UND PALYNOLOGIE

Prof Dr Walter Riegel, Institut und Museum fur Geologie und Palaontologie, Georg-August-Universitat, Goldschmidtstrasse 3, 3400 Gottingen, is the editor of the new Rundbrief of this well established organisation.

PALYNOLOGICAL AND PALAEOBOTANICAL ASSOCIATION OF AUSTRALIA

The 1989 bibliography is now available from Dr J. McEwen Mason, Geography and Environmental Science, Monash University, Clayton 3168. The 21 pages gives a list of references, a subject index and a list of members' addresses.

THE LINNEAN SOCIETY PALAEOBOTANY SPECIALIST GROUP

Dr A.R. Hemsley is the new Secretary of this group and he has convened a meeting for the 31st March 1992. This will take place in the rooms of the Linnean Society, Burlington House, London. If you would like further details of either the Group or the meeting please contact: Dr Hemsley, Biology Dept., Royal Holloway and Bedford New College, Egham, Surrey, TW20 OEX, UK. Offers of talks for future meetings will be gratefully received.

A NEW GROUP IN GERMANY

In March 1991, a new active group of palaeobotanists met in the regional museums of Gunzburg (Bavaria) and founded the "Paleobotanic Biostratigraphic working group". The reason was to create an interdisciplinary teamwork among specialists for biostratigraphy, biostratigraphy, paleoecology, palaeoclimatology etc and to solve problems in systematic and nomenclatural botany.

The free working group is not correlated with an official organisation, but wants to get contact to other groups and organisations. The leaders are H.J. Gregor and K.Y. Meyer. We meet once a year (changing sites) for 1-3 days (with excursion) and prefer round table discussion groups, rather than classical "speakers" which led to first productive discussion and to an idea of the 1992 topic - the Plio-Pleistocene boundary and its biostratigraphic problems. Free themes are also possible, not necessarily associated with the Tertiary. The discussions are published as abstracts in "Documenta naturae" (ed H J Gregor and H J Unger).

The next meeting is in April (23-25) 1992, in Ausburg near Munich and colleagues interested may write to H.J. Gregor, Natur Museum, JM Thäle 3, D-8900 Ausburg or K.J. Meyer, Niedersächs, Landesaut f. Bodeuforschung, Stilleweg 57 D-3000 Hannover.

MEDAL FOR SCIENTIFIC RESEARCH IN PALAEOBOTANY

In March 1991, Mr Fritz Geissert (Sessenheim/Alsace) was the first to receive the August-Wetzler-Medal in honour for his engagement in palaeobotany for the last 30 years. Mr Geissert is a private worker and not involved in any official work at a University or a Museum. The medal is designated to private palaeobotanist once every year and is given to the announced people in Guizburg at the Regional Museum, where A. Wetzler began his work on the Milasse floras 200 years ago.

DOCUMENTA NATURAE, MUNCHEN

All issues are available to IOP members with 30% saving on cover cost, write to:
Dr Hans-Joachim Gregor, Hans-Sachs-Str 4, D-8038 Gröbenzell, Germany.

3 Bromeliaceae from Rio Grande do Sul
5 Rhizome bulbs of fossil and Recent *Scirpus maritimus*
6 New palaeocarpological research in the Tertiary
7 The Early medieval cemetary of Sandau (Bavaria)
8 Holocene flora from Steinheim/Albuch
9 Archaeology and geology of the Natternberg (Bavaria)
10 Miocene flora from Steinheim/Albuch
12 New fossils from the Upper Marine Molasse
13 Mesophytic elements from Neogene bottomlands
16 Subtropical elements in the European Neogene IV
18 A Riß-glacial flora from Steinheim/Murr
20 Liassic ammonites from the Eastern Alps
25 Palaeontological research in the Mediterranean
26 Cretaceous fishes from Araripe - Brasil
27 Various themes (molluscs, geology, fossil fruits)
29 New Greek floras in the Neogene
31 Ecological history of the Salzburg-lakes
32 Palaeobotanical news
33 APP 1986 - Palaeobotany
34 Fishes in ancient Egypt
38 Pliocene of the Alsace
39 Carboniferous fauna of the Saar-area
40 Carbonate facies in the Cretaceous of Northern Spain
41 APP 1987 - Palaeobotany
42 Molasse 88 - Flora and geology of Aubenham
43 Gosau - Biofacies, tectonics etc
44 Berlin Quaternary and Carboniferous of the Saar
45 Ornithopoda/reptiles from the European Cretaceous
46 Tertiary floras
47 Archaeological findings (pottery) from Afghanistan
48 Recent coral reefs on the Philippines
49 New data on the Tertiary
50 Computer analysis of Neogene fruit and seed floras
51 Tethidic ophiolites
52 The Quaternary in upper Birma
53 Cretaceous palynology from Rüthen and La Vierre
54 Fossil leaf flora from Sprendlingen
55 The Schwandorf brown coal deposits - final report
56 Terrestrial paleocology (crocodiles, amber)
57 The suction pipe excavator flora - a Mio-Pliocene flora from France
58 Medieval pottery from Regensburg
59 Fossil floras and geology of the Liassic
60 Laminated sediments of an Eifelian Maar
61 Varia
62 Paleontology and Dialectics
63 Palaeobotany
64 Fissure filling Dielsdorf

CURRENT RESEARCH INTO FOSSIL PHYTOPLANKTON IN THE USSR

Russian research workers studying Mesozoic and Cenozoic organic-walled phytoplankton, dinoflagellates, acritarchs, and algae have held meetings at two-yearly intervals since 1987. Almost every active specialist was present at each of the sessions, which were held in Moskow at the Palaeobotanical Laboratory of the Institute of Geological Sciences of the Academy of Sciences of the USSR: they were convened by Drs. Vazhenikova, Vozzhennikova, and Akhmetiev.

At the last meeting (in July 1991) Dr. Andreyeva-Grigorovitch (Lvov) presented a general bio-stratigraphic correlation system for Paleogene dinoflagellate cysts in Southern Russia - the first time that such an ambitious scheme has been attempted. The scheme fits in neatly with the equivalent nannoplanktonic correlations for the same region.

Most of the remainder of the meeting was taken up with discussion of Mesozoic and Cenozoic dinoflagellates elsewhere in Russia. V.I. Il'yna reported on the Lower and Middle Jurassic of north Siberia and the Russian Platform. L.V. Rovnina's topic was the dinoflagellate associations found in the Bazhenovsky oil-producing formations in west Siberia. M.A. Petrosiants addressed the problems of the Lower Cretaceous of the pre-Caspian. A regional stratigraphical scheme for correlation of dinoflagellate cysts for the Paleogene of the S.E. Ural foothills and the Turgai region, the middle and Lower Volga region, Ust' Urt and the north Aralian region was presented by O.N. Vassilieva, N.A. Savitskaya, and N.I. Zaporozhets; while I.A. Kul'kova and L.V. Bakieva had rationalised the entire West Siberian area. N.YA. Brutman and I.V. Pozdnyakova contributed the Sakhalin and Kamchatka regional survey, and A.F. Buzlak treated Byelorussia, the Baltic region, and the northern Ukraine.

Methodological aspects of dinoflagellate systematics, morphology, hydrology, and palaeoecology were addressed in papers by T.F. Vozzhennikova and M.A. Akhmetiev. The evolution and systematics of *Deflandrea* were examined by Dr. Andreyeva-Grigorovitch.

A pair of monographs is being prepared which will summarise the current knowledge of dinoflagellates in the USSR. The first volume (which is virtually complete) is devoted to the pre-Quaternary and post-Mesozoic deposits that are found in southern Russia, Kazakhstan, west Siberia, and the Far East and North East. The second volume will treat the Mesozoic dinoflagellates and their deposits - but is further from completion. The major taxa are given traditional descriptive treatment - systematics and ecology are treated in separate paragraphs, and each taxon is illustrated by photographs. The stratigraphic correlation schemes include relations with western Europe and North America. An index will be provided, and a glossary is contemplated. Publication is still uncertain; but if financial assistance were available, it would be possible to publish the Miocene and Paleogene volume in the Spring of 1992.

The Soviet tradition of Five Year Plans continues, so a working party of researchers is drawing up a plan of campaign to investigate problems of phytoplankton geology in Russia (*sensu stricto*), which they hope the Ministry of Geology will support.

RUSSIA

Moskow

1 L.V. Rovnina - Institute of Geology and Development of Fossil Fuels (I.G.I.R.G.I.) (Siberia: Upper Jurassic & Lower Cretaceous.) 50 Ul. Fersmana, 117 312 Moskow.

2 M.A. Petrosyants - All-Union Science R.S.C.H. Institute of Petroleum and Geological Exploration (V.N.I.G.N.I.) (Central Asia, Caucasus: Upper Jurassic, Lower Cretaceous.) 36 Shosse Entusiastov, 115 118 Moskow.

3 N.I. Zaporozhets - Institute of Geology (G.I.N.) U.S.S.R. Academy of Sciences (Caucasus, Kazakhstan: Paleogene, Miocene.) 7 Pyzhevskii pereulok, 109 017 Moskow.

4 E.K. Iosefova - Institute of Geology (G.I.N.) U.S.S.R. Academy of Sciences (Russian platform: Lower Cretaceous.) 7 Pyzhevskii pereulok, 109 017 Moskow.

St. Petersburg

5 V.A. Federova - All-Union R.S.C.H. Institute of Petroleum & Geological Prospecting (V.N.I.G.R.I.) (North Siberia, Russian platform, Caspian Basin: Upper Jurassic, Cretaceous.) 39 Liteinyi prospekt, 191 104 St. Petersburg.

6 S.G. Vyalova - All-Union R.S.C.H. Institute (V.S.E.G.E.I.) (Russian platform [east part]: Paleogene.) 74 Srednii prospekt, 199 026 St. Petersburg.

Novosibirsk

7 T.F. Vozzhennikova Institute of Geology and Geophysics U.S.S.R. Academy of Sciences (I.G.i G.) (Siberia: Mesozoic & Cenozoic.) Deputatskaya 15a kv. 18, 630 099 Novosibirsk; *or* 3 Universitetskii prospekt, 630 090 Novosibirsk.

8 V.I. Il'yna - Institute of Geology and Geophysics U.S.S.R. Academy of Sciences (I.G.i G.) (Siberia & Russian platform: Jurassic.) 3 Universitetskii prospekt, 630 090 Novosibirsk.

9 A.F. Chlonova - Institute of Geology and Geophysics U.S,S.R. Academy of Sciences (I.G.i G.) (Siberia: Upper Cretaceous.) 3 Universitetskii prospekt, 630090 Novosibirsk.

10 N.K. Lebedeva - Institute of Geology and Geophysics U.S.S.R. Academy of Sciences (I.G.i G.) (North Siberia: Upper Cretaceous.) 3 Universitetskii prospekt, 630 090 Novosibirsk.

11 I.H. Kul'kova - Institute of Geology and Geophysics U.S.S.R. Academy of Sciences (I.G.i G.) (West Siberia: Paleogene.) 3 Universitetskii prospekt, 630 090 Novosibirsk.

Tyumen'

12 M.K. Ignatova - W. Siberian R.S.C.H. Institute of Petroleum and Geological Exploration (Zap. Sib. N.I.G.N.I.), Palynology laboratory. (Siberia: Jurassic.) 56 Ul. Volodarskogo, 625 670 Tyumen'.

13 L.V. Bakieva - W. Siberian R.S.C.H. Institute of Petroleum and Geological Exploration (Zap. Sib. N.I.G.N.I.), Palynology laboratory. (West Siberia:

Paleogene.) 56 Ul. Volodarskogo, 625 670 Tyumen'.

Sverdlovsk (Yekaterinburg)

14 O.N. Vassilil'eva - Institute of Geology and Geochemistry, U.S.S.R. Academy of Sciences (I.G.I.G.). (Urals, West Siberia, Turgai (North Kazakhstan): Paleogene.) 7 Potchtovyi pereulok, 620 219 Sverdlovsk.

Okha, Sakhalin oblast'

15 N.Y. Brutman - Sakhalin Institute of Petroleum and Natural Gas (Sakhalin N.I.P. i Neftegaz), Palynological laboratory. (Kamtchatka, Sakhalin: Paleogene, Miocene.) 41/20 Ul. Dzerzhinskogo, 694 460 Okha, Sakhalin oblast'.

16 I.V. Pozdyakova - Sakhalin Institute of Petroleum and Natural Gas (Sakhalin N.I.P. i Neftegaz), Palynological laboratory. (Sakhalin, Japan & Okhotsk seas: Paleogene, Miocene.) 41/20 Ul. Dzerzhinskogo, 694 460 Okha, Sakhalin oblast'.

UKRAINE

L'vov

17 A.S. Andreyeva-Grigorovitch - L'vov University, Katedra Istorytcheskoy Geology and Palaeontology. (South U.S.S.R.: Paleogene, Neogene.) 4 Ul. Shcherbakova, 290 005 L'vov.

18 N.A. Savitskaya - L'vov University, Katedra Istorytcheskoy Geology and Palaeontology. (Ukraine, Russian platform [east part]: Paleogene, Neogene.) 4 Ul. Shcherbakova, 290 005 L'vov.

BYELORUSSIA

Minsk

19 A.F. Burlak - Byelorussian Science R.S.C.H. Geological Prospecting Institute (Byel. N.I.G.R.I.) (Byelorussia: Paleogene, Miocene.) 16 Staroborissovskii, 220 600 Minsk.

KAZAKHSTAN

Alma Ata

20 T.O. Fedorenko - Institute of Geological Sciences, Kazakhstan Academy of Science. (West Kazakhstan: Cretaceous.) 694 Ul. Kalinina, 480 100 Alma Ata.

21 E.V. Nesterova - Institute of Geological Sciences, Kazakhstan Academy of Science. (Kazakhstan: Cretaceous, Paleogene.) 694 Ul. Kalinina, 480 100 Alma Ata.

22 M.A. Sotnikova - Prospecting and Surveying Exploration, S. Kazakhstan Geological Production Association (Ekspeditsia Yuzhkazgeologii). (South Kazakhstan: Paleogene.) 110 Ul. Furmanova, 480 091 Alma Ata.

Karaganda

23 N.G. Sharafutdinova - Central Geological Expedition, Central Kazakhstan Production Association (Ekspeditsia Centrkazgeologii). (South & Central Kazakhstan: Upper Cretaceous, Paleogene.) 45 Prospekt Sovietskii, 470 061 Karaganda.

TADZHIKISTAN

Dushanbe

24 E.S. Oleinin - All-Union Science R.S.C.H. Institute of Geology and Petroleum Exploration (T.O.V.N.I.G.N.I.). (Central Asia, Kazakhstan: Paleogene.) 14 Ul. Pushkina, 734 640 Dushanbe.

GEORGIA

Tbilisi

25 V.I. Gotsadze - Institute of Palaeobiology, Georgian Academy of Science. (Caucasus: Paleogene, Miocene.) 44 Ul. Pototchnaya, 380 004 Tbilisi.

BIOTIC RECOVERY FROM MASS EXTINCTION EVENTS

Patterns, Processes and Implications: a proposed project of the International Geological Correlation Programme

Prof O.H. Walliser, Gottingen, is the leader of IGCP project 216 "Global Biological Events in Earth History". At its meeting in Oxford in September 1990 he suggested that the IPA might initiate a new project based on the experience and results of the project 216. The President of IPA, Professor A. Hallam, appointed Dr Warren D. Allmon as organiser and future leader of the new project. The first draft of the proposal appears below. Write to Dr Allmon (Department of Geology, University of South Florida, 4202 East Fowler Avenue, SCA 203, Tampa, Florida 33620-5200, USA) with your comments.

Precipitated by both the impact hypothesis for the Cretaceous-Tertiary boundary and the suggestion that mass extinction episodes in earth history occur every 26-30 million years, the past decade has witnessed more study of the phenomenon of mass extinction that in the preceeding 180 years since the reality of extinction was first recognized by Cuvier. Despite the wealth of new data and hypotheses, however, few firm conclusions have surfaced. Many workers now may support the idea of bolide impacts, at least at the end of the Cretaceous, but the occurrence of the impacts at other mass extinction events is disputed. Even at the Cretaceous-Tertiary, it is not clear to all workers that such impacts, if they occurred, can account completely for observed patterns of extinction.

While a number of authors claim that episodes of mass extinction have had profound effects on the history of life, and even that they have been *the* fundamental shapers of that history, others maintain the essentially Darwinian belief that mass extinction is not qualitatively different from extinction occurring during "normal times" between mass extinction episodes. Part of the problem in deciding between these two extreme views is that, with some conspicuous exceptions, few testable hypotheses have been put forth to explain particular patterns of selectivity or non-selectivity over mass extinction boundaries.

One reason for this paucity of specific hypotheses is undoubtedly the lack of detailed case histories of extinction and recovery for individual clades. Most previous taxonomic work has concentrated on faunas rather than lineages, and as a result the effects of extinction have not been documented as clearly as they might be. If we are to improve our understanding of the process of mass extinction, and its short- and long-term evolutionary significance, we must (1) attempt detailed studies of individual, phylogenetically well-constrained, ecologically important taxa across extinction boundaries and (2) integrate these clade-level studies into community and ecosystem studies to assess the effects of extinction episodes on

their compostion, functioning and history.

The proposed project is a logical outgrowth of and successor to IGCP Project 216 ("Global Bio-Events"), and will benefit greatly from the results of that project. In expanding upon these results it should concentrate on obtaining empirical information of the type that can be used to test these hypotheses of the evolutionary significance of mass extinction. These data fall under four general categories:

1) documentation of patterns of extinction; what taxa, communities and ecosystems suffer most at mass extinction episodes?

2) documentation of the history of surviving clades across extinction boundaries at as low a taxonomic level as possible;

3) documentation of the pattern of post-extinction evolution in surviving clades and communities; which clades radiate fastest and which more slowly, and in what environments?

4) documentation of the long-term effects (on taxonomic and morphologic diversity, ecospace utilization, morphological trends) in individual clades, communities, and ecosystems of mass extinction episodes.

Such a project will only be possible with international co-operation, for the following reasons:

1) mass extinction episodes are, almost by definition, world-wide phenomena; the patterns documented in one region may not mirror those documented in another;

2) if one of the goals of the project is to document effects of mass extinction on the biosphere as a whole, data from as much of the earth's surface as possible must be utilized;

3) the wealth of empirical experts and information available in the work of specialists in particular taxonomic groups and geological intervals, particularly in countries outside of North America and Western Europe, which are exactly the sort necessary to improve the existing database on the effects of mass extinction episodes, should be made available to a wider audience and integrated into debates on these issues.

At the most general level, the proposed project may have at least the following findings:

– If episodes of mass extinction are really more common than previously believed (whether they occur periodically or not), and are more the rule than the exception in the history of life, then a substantial proportion of that history has been spent "recovering" from such episodes. By setting out to document and evaluate the effects of such recoveries in the fossil record, we will be achieving no less than a detailed study of a quantitatively major component of life's history on earth. If, as discussed above, mass extinctions are also distinct and important as evolutionary processes in their own right, we will also be assessing a qualitatively significant component of that history.

-- It is becoming clearer and more widely accepted that the earth's biosphere is presently in the midst (albeit perhaps in the early stages) of an episode of extinction, caused almost completely by human activities, that may rival some episodes of mass extinction recognized in the geological record. As humans, we are therefore poised to affect the future course of evolution, perhaps in a way that no single species ever has. Since the long-term significance of extinction to life's history can only be assessed in the fossil record, the results of this project can be applied to at least two aspects of the current crisis:

a) better understanding of the causes and consequences of particular ecological disruptions on geological time scales may allow development of particular measures to lessen and perhaps even avoid these types of disturbance in the present and near future;

b) a better understanding of the recovery of ecosystems after severe disturbance on geological time scales may allow development of measures to hasten such recovery on human time scales.

NEWS OF INDIVIDUALS

Richard Bateman: After a pleasant and productive three-year sojourn at the Smithsonian Institution in Washington DC, Richard Bateman and Orpah Farrington have returned to the UK. Richard has taken a NERC 'Advanced' Research Fellowship at the University of Oxford. Both parties can also be found at the monthly 'last Wednesday' meetings in the Norfolk Tavern in South Kensington, where they now give informal presentations on frontier life in the Colonies. They would welcome visits from friends old and new at either location.

Jack Wolfe has found his way into the controversial pages of London's only evening newspaper, The Standard (August 1st). This organ is well known for its extremely right-wing views, one-sided presentation of arguments, and vicious character assassinations. The article announces Wolfe's latest Nature paper and is headlined: "Meteor wiped out dinosaurs".

Hans Kerp continues to move around and change his address. After his move from Philadelphia to Utrecht he now finds himself in Munster where he continues work on Late Palaeozoic floras. He has the professorship of palaeobotany in succession to Prof W. Remy, and can be contacted at Forschungsstelle fur Palaobotanik Westfalische Wilhelms-Universitat, Hindenburgplatz 57-59, D-4400 Munster, Germany.

RECENT PUBLICATIONS

A World of Ferns.
J.M. Camus, A.C. Jermy & B.A. Thomas, 1991. 112 pp., Natural History Museum, London. ISBN 0 565 01120 0.

This well-illustrated book was produced to celebrate the first centenary of the British Pteridological Society. There are ten pages of pictures and concise text allocated to fossils, not just the two pages listed in the contents.

Improving the Stability of Names.
D.L. Hawksworth (Editor), 1991. 358pp., Koeltz Scientific Books, Konigstein, Germany. ISBN 3 87429 328 9.

This is a special edition of the Regnum Vegetabile series (Vol. 123). It is a collection of the papers presented at Kew in February 1991 ("The Stability of Plant Names - Needs and Options, see IOP Newsletter 44). Price: £47 (hardback).

BOOK REVIEW

Die Steinkohlen-floren Nordwestdeutschlands: Fortschritte in der Geologie von Rheinland und Westfalen.
K.H. JOSTEN, 1991. 36, 434 pp., 232 text figs., 29 tab.: plate-vol.: 451 pp., 220 pls.; Krefeld. DM 148. ISSN 0071-8009.

As a result of the mining activities the Carboniferous flora of NW-Germany is studied intensively by generations and may be one of the best know floras of Earth History. The results are rich collections which are accumulated in may institutions. One of the most important collections of this material belongs to the Geologische Landesamt of Nordrhein-Westfalen in Krefeld. After World War II the Geological Survey in Krefeld took over the research on the Carboniferous in this area in succession of the Preussische Geologische Reichsanstalt in Berlin. In this sense Karl Heinz Josten is the successor of Henry Potonie and Walther Gothan in Berlin, and during his long activity in Krefeld he became the most famous expert of the German Carboniferous at present.

The taxonomy of the Carboniferous plants (about 200 species) occupies a large part of the "Steinkohlen-Floren Nordwestdeutschlands". The descriptions are clear and comprehensive. Every species is illustrated by photographs of high quality and by special drawings. A determination key is included as well as large special tables for the distinction of the species. These tables contain drawing sketches and lists of morphological characters. In the taxonomical part Josten has cleared up a lot of confusion in the nomenclature of Carboniferous plant fossils with which we have had to live up to now. The confusion was the result of the long history in this field of paleobotany.

The more general chapters of the book are remarkable too. In the stratigraphy of the NW-German Carboniferous Josten has a great deal of experience. Well arranged tables about the stratigraphical range of plant species and genera are included and enable rapid decisions on the stratigraphic age of samples. In the chapter about ecology the author displays impressively how the different plant successions have constructed the series of coal seems in the Rhenish Carboniferous.

The final representation of a Carboniferous forest is illustrated by a photograph of a diorama from the exhibition of the Ruhrland Museum in Essen, in which the aspect of the Carboniferous forest is well reconstructed. This picture is excellently printed in colour on the cover.

I am sure that in the near future we will find this book not only in many German libraries. Because it is of fundamental significance for the Carboniferous floras in general, use is recommended for comparisions with all floras of the whole northern hemisphere. And it could be used as an outstanding example for similar revisions of other regions.

F. SCHAARSCHMIDT, Frankfurt, Germany.

THE PLANT FOSSIL RECORD

VERSION 1

This database consists of 10,478 Records representing the type species of plant fossil genera. It became available in April 1991 and requires about 27Mb of dedicated hard disk, although, of course, smaller selected chunks can be used separately. The package includes a copy of the Textmaster retrieval programme.

Each Record is organised according to the format and standard agreed at a special meeting of IOP and named The Frankfurt Declaration. There is a maximum 43 Fields containing taxonomic, nomenclatural, bibliographic, descriptive, stratigraphical, geographical and curatorial detail. Most of the Records are incomplete: the examples illustrated here give a fair idea of the range of detail they contain.

Textmaster is a freeform content searchable database programme and can search for any word (except prepositions), or sets of words, in any Field. Simple questions of the 10,478 Records in PFR1.0 can be answered in a few seconds. More complex searches involving two or more words, with optional limitations such as one part of a word, may take a little longer.

The 10,478 Records represent *nearly* all plant fossil genera. They include details of fossils of different organs (leaves, wood, stems, pollen etc.) of vascular plants as well as those of remains of bryophytes, dinoflagellate cysts and other algae, fungi, nannoplankton and acritarchs. The details have been studiously edited from existing catalogues - Index Nominum Genericorum, and those of Andrews, Blazer, Watt and Meyen.

The PFR database can be used as an authoritative source of palaeobotanical data in a rapidly accessable form. The search facility of the Textmaster programme allows new use to be made of the data. Both simple and multiple questions can be asked of the data, such as:
Which genera were described from North America?
How many fossil genera of wood are there?
Who is the author of a particular fossil genus?
Which Palaeozoic genera are based on leaf fossils from India?

The 1993 International Botanical Congress will consider a proposal for all plant genera to be registered as "Names in Current Use" (NCU). IOP is monitoring names of fossil genera through appropriate specialists and the NCU status is recorded in Field 3 of the PFR Record. PFR1.0 includes about 2,000 such assessments by named specialists.

The PFR database has the potential of answering more complex and deep questions, especially when details of species are included in later versions and when occurrence Records are added as well. For now, PFR1.0 has very limited scope for this kind of use. Work is in progress to produce a PFR occurrence database but it will obviously take many thousands of hours of work to produce a version which matches contemporary knowledge. Such a tool would help reconstruct evolutionary processes, plot migratory changes, check other hitherto hidden patterns within the record, identify wrong identifications etc., reconstruct palaeoenvironments and accomodate biorecords. All human knowledge of past vegetation would be open to inspection and intelligent consideration.

The package operates from a programme called Textmaster which is included. Instructions to install and operate the display and search facilities are included as a printout, as a READ.ME file and within Textmaster's HELP menus.

The package requires an IBM personal computer (or compatible) running on DOS version 3.0 or higher with at least 27Mb of dedicated hard disc.

It is hoped to provide an Apple MacIntosh version at a later date IF THERE IS A REALISTIC DEMAND - please write to the IOP office to establish such demand.

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PFR

Example Files

(**) PFR number 93 Actinoxylon
##1 NAME_OF_GENUS: Actinoxylon
##2 PFR_NUMBER: 93
##3 NCU_STATUS: (CB) Accepted
##4 ORGAN: Stem, Leaf, Wood
##5 TYPE_SPECIES: A. banksii L. C. Matten
##6 AUTHOR_OF_GENERIC_NAME: L. C. Matten,
##9 YEAR_OF_PUBLICATION: 1 Aug 1968
##11 JOURNAL_OR_BOOK_TITLE: Amer. J. Bot.
##12 JOURNAL_NUMBER: 55
##13 PAGE_NUMBERS: 776
##18 BOTANICAL_RANK_ORDER_OR_>:
Tracheophyta,Progymnospermopsida,Archaeopteridales
##20 DIAGNOSIS: Generic Diagnosis; Plants with penultimate branches bearing bearing spirally arranged ultimate branches and leaves in a subopposite and decussate pattern. Leaves non-planated, unwebbed consisting of a terete axis that dichotomizes three or more times. Primary xylem of penultimate branch a six armed actinostele, of ultimate branch a three or four lobed protostele, and of leaf a terete strand. Primary xylem mesarch. Secondary xylem cells rectangular in cross section, in radiating rows around primary xylem; in older branches. Cortex of all axes heterogenous with a parenchymatous inner part and a sclerenchymatous outer part.
##22 PRESERVATION: Permineralised in pyrite
##24 REGION: N America
##25 LOCALITY: USA, New York, Greene County, 2 miles NW of Cairo
##28 LITHOSTRATIGRAPHY: Hamilton Group, Kiskatom Formation (equivalent in age to the marine Skaneatales Formation)
##30 SAMPLE_LITHOLOGY: Black fissile shale
##31 ERA: Palaeozoic
##32 AGE_OF_SEQUENCE: M Devonian, Givetian. Cazenovia stage, Erian Series
##35 REPOSITORY: Southern Illinois Palaeobotanical Collection (SIPC), spec. no. CQ17. Paratypes, SIPC CQ1, CQ3, CQ6, CQ8
##38 LINKS_TO_ING: 792
##41 ADVISOR/DATE_ADDED_TO_PFR:
ARH 20Dec1989, PLH 22Jan1990, (CB) 8Nov1990
##42 SOURCE_REFERENCE_FOR_PFR:
ING, Original reference
(^^) 93.PCX

(**) PFR number 10443 Townrowia
##1 NAME_OF_GENUS: Townrowia
##2 PFR_NUMBER: 10443
##4 ORGAN: Reproductive
##6 AUTHOR_OF_GENERIC_NAME: Retallack
##7 DATE_OF_PUBLICATION: 1981
##18 BOTANICAL_RANK_ORDER_OR_>:
Tracheophyta
##41 ADVISOR/DATE_ADDED_TO_PFR:
PLH 27Mar1991
##42 SOURCE_REFERENCE_FOR_PFR:
Meyen 1990
##43 OTHER_NOTES:
Meyen's classification code F5Cp
(^^) 10443.PCX

(**) PFR number 9432
##1 NAME_OF_GENUS: Sphenophyllostrobus
##5 TYPE_SPECIES: S. sp. non designatus
##6 AUTHOR_OF_GENERIC_NAME: Carpentier
##7 DATE_OF_PUBLICATION: 1919
##8 AUTHORS_OF_ARTICLE: A. Carpentier
##9 YEAR_OF_PUBLICATION: 1919
##10 TITLE_OF_ARTICLE: Notes d'excursions et remarques sur le bassin houiller de la Basse-Loire.
##11 JOURNAL_OR_BOOK_TITLE:
France Compte rendu sommaire et Bull 4th ser.
##12 JOURNAL_NUMBER: 18
##13 PAGE_NUMBERS: 235-247
##24 REGION: Europe
##25 LOCALITY: France
##31 ERA: Palaeozoic
##32 AGE_OF_SEQUENCE: Carboniferous
##41 ADVISOR/DATE_ADDED_TO_PFR:
MCB 28Dec1990
##42 SOURCE_REFERENCE_FOR_PFR:
Andrews 1970
(^^) 9432.PCX

(**) PFR number 2 Aachenipollis
##1 NAME_OF_GENUS: Aachenipollis
##2 PFR_NUMBER: 2
##3 NCU_STATUS: (AT) (NFH) Accepted
##4 ORGAN: Pollen
##5 TYPE_SPECIES: A. aachenensis Krutzsch
##6 AUTHOR_OF_GENERIC_NAME: W. Krutzsch,
##9 YEAR_OF_PUBLICATION: 1970
##11 JOURNAL_OR_BOOK_TITLE: Palaeontol. Abh., Abt. B, Palaeobot.
##12 JOURNAL_NUMBER: 3
##13 PAGE_NUMBERS: 408
##31 ERA: Mesozoic
##32 AGE_OF_SEQUENCE: Cretaceous
##38 LINKS_TO_ING: 3
##41 ADVISOR/DATE_ADDED_TO_PFR:
ARH 18Dec1989, AT 30Oct1990, NFH 9Oct1990
##42 SOURCE_REFERENCE_FOR_PFR: ING
(^^) 2.PCX