IOP NEWSLETTER 35

INTERNATIONAL ORGANISATION OF PALAEOBOTANY

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES
-SECTION FOR PALAEOBOTANY
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APRIL 1988

PLEASE MAIN NEWS AND CORRESPONDENCE TO YOUR REGIONAL REPRESENTATIVE OR TO THE SECRETARY FOR THE NEXT NEWSLETTER 36. 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

Observant readers will have noticed that the By-Laws printed on the back page of the last newsletter announced that annual dues are now UKL5.00 or US$10.00.
Please use the enclosed sheet to send money to your Regional Representative.

IOP REGIONAL REPRESENTATIVES

A full and up to date list of Regional Representatives appears on page 12 of this newsletter. For the time being the IOP Secretary will be distributing the newsletter to palaeobotanists in India who have paid him their dues.
Dr B. Meyer-Berthaud, Montpellier, Dr M. A. Akhmetiev, Moscow and Dr K.M. Khan, Jamshoro, Pakistan have kindly agreed to be responsible for their regions. The IOP Executive Committee thanks Dr J. Holmes and Dr E.J. Romero for their years of service to IOP for southern Europe and South America.

LONDON PALAEOBOTANY EVENINGS

For many years, the last Wednesday of every month has seen a gathering of palaeobotanists in a public house close by the

British Museum (Natural History) from 5.30pm until late. The discerning membership of this group has grown increasingly critical of the quality of ale and ambiance at the usual haunt and has recommended a change of meeting place.
These meetings now take place at The Cranley, Fulham Road, opposite the north end of Sydney Street. All those interested in palaeobotany are invited to attend at any time during these evenings.

VENUE OF THE 4TH IOP CONFERENCE, 1992
Proposals to host this meeting have now been received from palaeobotanists in China, Japan, Poland and Scandanavia. There may yet be more.
Since these meetings began, with Reading UK 1980, Edmonton Canada 1984 and now Melbourne Australia 1988, it has been the tradition to arrange them adjacent to the International Palynological Congress. This procedure was supported at the 1987 Berlin General Assembly, and was approved by the IOP Executive Committee. IFPS Councillors are voting about now on where their 1992 IPC will be located. Their decision will be communicated to the IOP Executive Committee as soon as it is known, in a few weeks time, and its members will be asked to confirm the host of the adjacent IOP Conference. This decision will be announced in the next Newsletter, and at the Melbourne IOP Conference later this year.

EDITOR'S CORRECTION AND APOLOGY
The July 1987 IOP Newsletter 34 included some words of appreciation of the late Sergei Meyen. These were attributed to "N. Sveshnikova". The author was Professor N. Snigirevskaya, a member of the IOP Executive Committee.

REPORTS OF RECENT MEETINGS

CONCEPTS, LIMITS AND EXTENSION OF INDIAN GONDWANA: a workshop at the Birbal Sahni Institute of Palaeobotany, Lucknow, India, November 1987.
The Birbal Sahni Institute of Palaeobotany invited a select gathering of Gondwana specialists to take stock of Gondana related data generated so far, at a workshop on "Concepts, Limits and Extension of the Indian Gondwana" (November 14 - 18, 1987). Reports on key areas of Gondwana research were presented with a view to identify problems and areas that require immediate synergistic research. Introducing the theme, B.S. Venkatachala observed that when first marine signatures were discovered in Indian Gondwana at Umaria, these were regarded as marine intercalations in predominantly freshwater facies. However, subsequent discoveries of marine signatures in the Talchir sediments of Son-Mahanadi, Satpura, Damodar and Pranhita-Godavari grabens, Palar and Rajasthan basins and the Barakar, the Barren Measures and the Raniganj formations (B.S. Venkatachala & R.S. Tiwari; this workshop) necessitate a relook at the definition of the term Gondwana. Should it be restricted to continental facies sensu stricto or should it include both continental and marine facies sharing common biota? He emphasised that the mere presence

of a Gondwanic flora does not make a sedimentary sequence the Gondwana sensu stricto. He exhorted the participants to examine if it was any more worthwhile to retain this term. In the latter case, the lower and upper boundaries have to be clearly defined and demarcated, though there does not sem to be much discrepancy about the lower limit. The glacial episode is mostly accepted to demarcate this limit. But, the reasons for fixing the upper limit of the Gondwana above Neocomian are obscure. If a typical floral assemblage characterises Gondwana, then the provincialism exemplified in the Permian floras is no more evident even in the late Triassic.

R. Garg, K. Ateequzamman, and K.P. Jain recommended that Late Triassic may be considered to mark the Upper age limit of Gondwana sequences. There being no definite evidence of non-marine Jurassic sediments in intracratonic Gondwana basins, the Neocomian non-marine deposits of peninsula India are a post-Gondwana event. Jai Krishna also suggested exclusion of marine and/or pericratonic units from Gondwana even if a characteristic Gondwana flora is found in them.

However, N.D. Mitra would restrict the term Gondwana to essentially terrestrial or deltaic sediments but having characteristic Gondwana flora and fauna. Accordingly, the open sea deposits such as Tethyan sediments or the Gangamopteris beds of Kashmir are not to be included in the Gondwana. The Indus-Suture zone is the established northern limit of Inidan plate. To extend the limit beyond this, more evidence is needed. R.S. Tiwari and Vijaya observed that the Permian and Triassic palynofloras of Tethyan Himalaya exhibit a major relationship with the Gondwana floras although Cathaysian and middle-east influence is noticeable. Again in the Jurassic, uniformity in assemblages is pronounced. They suggested the accretion of microplates in different times, a possible extension of the Indian Plate up to northern Tibet and a narrower Tethys. S.C. Srivastava, A. Prakash, and T. Singh informed that palynofossils from the Permian of Eastern Himalaya depict an eastward extension of the Gondwana flora.

H.K. Maheshwari and Usha Bajpai analysed the floras that grew around the northern margin of eastern Gondwana assembly and concluded that, although some of the floral assemblages contain certain "Gondwanic" elements, yet their overall composition, except of the one from Kashmir, is basically Cathaysian. This coupled with the occurrence of "northern" Mesozoic flora at Fukche, Ladakh and near Lhasa, Tibet restrict the northern boundary of the Indian Gondwana along the Indus-Yarlung-Zangbo suture. H.M. Kapoor and G. Singh also observed that the Permina flora of North-West Himalaya is distinguished from the peninsular Gondwana flora by the presence of some northern elements. Palaeontologically, the Karakoram Basin has a matching with that region of southern Tibet which is situated north of the Indus Suture. On the other hand, F. Ahmad suggested that geological, faunal and floral evidences overwhelmingly suggest that Tibet was not separated from India in the Permian-Triassic time and hence the Indus-Suture zone concept is not valid.

The floras are the best indicators of palaeogeographic limits of any region. D.D. Pant remarked that coal-forming Gondwana flora

thrived in a different set of climatic conditions than that of Euramerican and Angara floras. The Glossopteris flora developed from the Lower Carboniferous Rhacopteris-Lepidodendropsis flora by mutation probably brought about by sudden chilling through the widespread glaciation. Seasonal fluctuation is indicated by marked annual rings in the Permian wood. Shaila Chanda and Anil Chandra, and R.S. Tiwari and Archani Tripathi enumerated the changing patterns of climate during the Gondwana period on the basis of mega- and micro-plant remains respectively. Palynologically, a dry arid climate during the Barren Measures and the Panchet is not supported.

S.C. Srivastava strongly contended that Dicroidium and Lepidopteris establish a Triassic age for Nidpur the assemblage; palynology ascertains that the Nidhpur beds are younger than the Panchet. P.P. Satsangi felt that the area needs attention for more positive evidence regarding age.

H.P. Singh and B.S. Venkatachala demarcated the Upper Jurassic/Lower Cretaceous palynoassemblages of peninsular India on the basis of the appearance of a new set of cryptogamic spores which possess distinctive morphology and can be used effectively as boundary markers. They consider the palynoflora of the continental deposits of the Rajmahal Basin (Neocomian) compares closely with the palynoflora of the Great Artesian Basin of Australia. According to Sukh-Dev the Jurassic-Early Cretaceous flora of India contains a mixture of European as well as Gondwana elements. The late Cretaceous flora assumed a new dimension which continues to maintain its southern heritage till today.

R.V. Savanur and A.K. Roy informed that the Gondwana coals are bituminous and sub-bituminous in rank and contain high ash. The occurrence of coking coal and superior grade non-coking coals are very limited and are confined mostly to Damodar Valley coalfields. The total coal resources in the Gondwana are assessed at 1,57,623 metric tonnes. D.C. Bharadwaj suggested intensification of palynological correlation of coal seams by emphasising the typification of coal seams on the basis of similarity in qualitative composition and also to some extent by quantitative assessment of palynoflora also. Utilization of megaspores for stratigraphic zonation of Gondwana sediments was demonstrated by H.K. Maheshwari and Rajni Tewari.

H.K. MAHESHWARI & R.S. TIWARI, Lucknow, India

(This is a shortened version of a contribution submitted by Prof. B.S. Venkatachala: the complete text is reproduced in the January 1988 Newsletter of the American Association of Stratigraphic Palynology.)

2nd CONGRESS OF THE PALAEOBOTANICAL SOCIETY OF CHINA

The second Congress of this Society, incorporating the 1987 symposium of Chinese palaeobotany, was held in Nanjing from 24th to 27th November 1987, with 86 palaeobotanists present, including 78 researchers and 8 post-graduate students, from various universities, museums, and Ministries of geology, coal-mining and oil exploration. The Congress promoted professional exchange, strengthened unity and co-operation among Chinese palaeobotanists and also elected the second council of The Palaeobotanical Society of China. The Congress will undoubtedly exert a positive

influence on palaeobotanical research in China.
The members of the new Council of the Palaeobotanical Society of China are:

Honorary Chairman:	Prof Ren Xu, Beijing
Chairman:	Prof Xingxue Li, Nanjing
Vice-Chairmen:	Prof Zhiyan Zhou, Nanjing
	Prof Jiarong Mi, Changchun
	Dr Jianan Zhu, Beijing
Secretary:	Prof Xiugu Zhao, Nanjing

There were 69 papers and abstracts dealing with the systematics and evolution of fossil plants, palaeoecology, palaeogeography, palaeoclimates, and the application of modern technology to palaeobotanical research. During the Congress, Prof Hongzhen Wang, the famous geologist and palaeontologist, gave a specially invited lecture on "Reconstruction of the continents and palaeophytogeography in the Palaeozoic".
The main theme of the papers involved palaeofloras and their biostratigraphy, for example:
X.X. Li et al.: The Namurian of Jingyuan, Gansu
P.J. Li et al.: The Middle - Early Jurassic flora and stratigraphy of the mortheastern border area of the Chaidamu basin, Qinghai
J.R. Mi. at al.: Characteristics of the Late Triassic flora of Dajianggang, Jilin, and its palaeoclimatic conditions
X.G. Zhao et al.: The Late Palaeozoic flora from southeastern Shanxi
B.H. Huang: Late Palaeozoic phytogeography and plate tectonics of northeastern China and Nei Monggol
Z.Q. Wang: Fossil plants from the Shiqianfeng Group of north China
S.X. Guo: The Oligocene flora of Yanji, Jilin.
These areas of palaeobotanical study, combined with their biostratigraphy, palaeogeography and palaeoclimate, are of great importance for current economic growth, and especially for the development of fossil fuel energy sources.
There were also several papers dealing with palaeobotanical systematics and evolution, including:
M.N. Ye & Z.Y. Zhou: The morphology of the Early Cretaceous fern Eogymnocarpium sinense and its relationships
G. Sun: Cuticles of Phoenicopsis from northeast China with a discussion on its taxonomy
H.M. Li & C.B. Zhang: Some Early Cretaceous angiosperms from Yanji in Jilin
X.L. Yao: Discovery of reproductive organs of Sewardiodendron laxum from the Middle Jurassic of Yima, He'nan.
In addition, H.Q. Li, a younger lecturer, reported "Anatomical research on Gigantonoclea guizhouensis leaves" in which he pointed out that the species possesses characteristics both of pteridosperms and angiosperms. It may therefore be a transitional plant between these two higher taxa. G.X. Yanngm associate professor at Beijing University, and reported her research on "Evolution of Gigantopterids from western Hu'nan" based on impression material. Prof Z.Y. Zhang of Nanjing University proposed that Longfenshonia Du (1982) from the Precambrian Quingbaikou System of Hebei, was probably the earliest fossil

bryophyte, with probably differentiation into root, stem and leaf. Prof G.L. Shen of Lanzhou University gave a talk on "Applications of expert systems in palaeobotanical taxonomy".
Prof Z.Y. Zhou briefed the Congress about the 14th IBC in Berlin, and submitted the draft revised IOP Constitution to members for discussion.
During the Congress, geological and botanical excursions included visits to the Upper Paleozoic section at Kongshan, Jiangning County, the Jurassic section of Zhongshan, Nanjing, and the Zhongshan Botanical Garden at Nanjing.
X.G. ZHAO & G. SUN*, Nanjing, China
*Dr Sun is working at the British Museum (Natural History), London, during 1988.

NEWS OF FORTHCOMING MEETINGS

ORGANISATION FRANÇAIS DE PALÉOBOTANIQUE, France, May 31, 1988
The O.F.P. is holding a palaeobotanical seminar at Lille from May 31 - June 1, 1988. The first day will be devoted to oral presentations and the second will include a visit to the "Musée de la mine de Lewarde" and a visit to the palaeobotanical collections of the Gosselet Museum.
Write to Mme. C. Brousmiche, Laboratoire de Paléobotanique, Université des Sciences et Techniques de Lille, 59655 Villeneuve d'Ascq, France T: 20-43-41-33. Telex 136-339F.

3RD IOP CONFERENCE, MELBOURNE, AUSTRALIA, August 1988
Registrations are still acceptable for A$170: contact Dr J. Douglas, Department of Industry Technology and Resources, P.O. Box 173, East Melbourne, 3002 Victoria, Australia. Outstanding abstracts should be sent immediately to enable sessions to be scheduled. Receipts for registration will be sent immediately: if one is not received by return post an enquiry should be made.

VISTAS IN INDIAN PALAEOBOTANY, India, 14 - 16 November 1988
This meeting will include presentations on the origin and antiquity of life, palaeobotany of fossil fuels, source rock palynology, morphology taxonomy and evolutionary trends, reconstructions of past vegetation, taphonomy, animal plant interactions, chemistry of fossils, ancient climates and environments, palaeooceanography, techniques, pre- and proto-history of plants, data storage and retrieval.
Write to the organising secretary: Dr R.S. Tiwari, PO Box 106 GPO Lucknow 226 001, India.

1st INTERNATIONAL SYMPOSIUM ON EXTANT AND FOSSIL CHAROPHYTES, France, 5 - 8 July, 1989
This meeting will take place at the Université de Montpellier which has been an active centre for charophyte research for more than twenty years. Topics for discussion for the fossil forms include assemblages, biostratigraphy, continental carbonate microfacies, evolution and global events, phylogeny, palaeoecology, origin of recent genera, common systematics for

fossil and recent Charophytes.
Write to Dr M. Feist, Laboratoire de Paléobotanique, U.S.T.L., Place E. Bataillon, F-34 060 Montpellier, France.

2nd EUROPEAN PALAEOBOTANICAL CONFERENCE, Spain, September 3 - 7, 1989
This is to be held in the Laboratorio de Paleobotànica de la Facultad de Ciencias Geologicas, Universidad Complutense de Madrid, from 3 - 7th September. Registration costs about 5,000 ptas., accomodation from about 3,500 ptas. a day and the field trip about 6,000 ptas. There will be lectures, posters and a field trip. Write to Dr C. Alverez Ramis, Universidad Complutense, Departmento dr Paleontologia, 23040 Madrid, Spain.

PALAEOFLORISTICS AND PALAEOCLIMATIC CHANGES IN THE CRETACEOUS AND TERTIARY, Czechoslovakia, August 29 - September 2, 1989
This symposium is part of the International Geological Correlation Programme 216, Global Biological Events in Earth History. During the four days there will be lectures in Prague and a one day field trip to the Tertiary of NW Bohemia. At February 23 1988, 51 lectures by participants from 26 countries are registered. Write to Dr E. Knobloch, Geological Survey, Malostranske nam. 19, CS-118 21 Praha 1, Czechoslovakia.

MIOCENE PALYNO-FLORA OF HIGH-LATITUDE ARCTIC (NOVOSIBIRSK ARCHIPELAGO)

From the Nerpichiy sequence on the Fadeevsky Island (approximately 75 degrees N), exceptionally taxonomically rich palynoflora has been sampled and analyzed in detail. It proved to be characterized by:
1) the presence in it of type analogues of present hypoarctic landscapes (forbs, scrub birch and alder);
2) high content of dark and high conifer-taiga complex;
3) the presence of deciduous broad-leaved (moderate) vegetation.
Using the data obtained, together with the latest information on the Neogene Beaufort Formation on Banks and Meighen islands, District of Franklin (Matthews, 1987) leaf and seed floras are also registered. The plants reflect tundra-forest environments, and it is possible to explain this somewhat strange phyto-oryctocoenosis.
Owing to the possibilities of the spore-pollen analysis, we might be able to use the Miocene palynoflora of Fadeevsky Island to show a synthesis of three landscape zones. The outer zone must have occupied the northern margin of the paleo-shelf. It must have been a place which, affected by a rather cold ocean, accomodated initial Hypoarctic landscapes. The central zone was situated in relative proximity to the paleoshelf limits, that is, belonged to the areas dominated by oceanic climatic environments. There, taiga coniferous complexes dominated (boreal dark coniferous floral formation). Our palynological data and the evidence of carpology (determinations by P.I. Dorofeev; Trufanov et al., 1979) suggest that what is now the Novosibirsk

archipelago area which belonged to this zone in the Mid-Late Miocene (a period of the biggest eustatic rise of the polar shelf).
The inner zone took the place of the central zone in the latitudinal direction. It might be possible that at the time of high shelf stand this territory showed widely distributed light coniferous (pine) and deciduous broad-leaved forests, in particular in areas with ragged relief, and in large river valleys.
Thus, the proposed paleogeographic model gives a radically new interpretation: the synchronous existence of different types of zonal vegetation in High Arctic regions in the second half of the Miocene.
Y.V. ZYRYANOV, Moscow, USSR

BIBLIOGRAPHIES

ORGANISATION FRANCAIS DE PALEOBOTANIQUE
The latest edition is available from Mme C. Brousmiche, Laboratoire de Paleobotanique, Université des Sciences et Techniques de Lille, 59655 Villeneuve d'Ascq, France T: 20-43-41-33.

BIBLIOGRAFIA PALEOBOTANIKA Y PALINOLOGICA LATINAMERICANA 1983 - 5
This is compiled by S. Archangelsky and occupies pages 23 - 34 of the Boletin de la Asociacion Latinamericana de Paleobotanica y Palinologia, volume 10, 1987.

BIBLIOGRAPHY OF AUSTRALASIAN PALYNOLOGY AND PALAEOBOTANY, 1986
This is published by the Palynological and Palaeobotanical Association of Australia and is compiled by Helene A. Martin. As well as the 1986 bibliography the booklet contains a classifciation according to topics and a list of members' addresses.
This is the 8th in the series of such bibliographies, extending back to 1977. Send A$4.00 for each edition to Dr H.A. Martin, School of Botany, University of New South Wales, P.O. Box 1, Kensington, N.S.W., Australia.
The P.P.A.A. has also produced a Directory of Current Activities for 78 members, listing their current projects and their emphasis of study. There is also a cross reference index.

NEWS OF INDIVIDUALS

GARY DOLPH, Department of Biology, Indiana University, Kokomo, USA has been given the President's Award of Indiana University. This is in recognition of his contributions to research, teaching and service. He has been at the Kokomo Campus of the university since finishing his PhD in Biology and Geology with David Dilcher in 1974. Earlier, he completed his first degree in Biology working with Douglas Grierson and Patricia Banamo. He was the first and only Secretary and Newsletter editor for the International Association of Angiosperm Paleobotany from 1976 -

1981. His special areas of research have been with angiosperm leaf remains and paleoclimate.

DAVID L. DILCHER, University of Indiana, has recently been awarded that university's Sonneborn Award for excellence in both teaching and research. The January 17, 1988 edition of Bloomington's Sunday Herald-Times includes a one and a half page report on how he "aims to excite students about life". One of his methods, it explains, is to "find a tree on campus 'that they would feel comfortable with and commune with it" - an activity recently recommended by the United Kingdom's Charles, Prince of Wales.

VIJAYALAKSHMI SRINIVASAN, who graduated from the University of Poona, is undertaking a study of Cretaceous conifers at the Swedish Museum of Natural History, with support from the Swedish Institute. She started her investigations in July 1987 and will stay in Sweden for at least another year.

B.S. VENKATACHALA, the Director of the Birbal Sahni Institute of Palaeobotany, Lucknow, has taken over as President of the Palaeobotanical Society from January 1st 1988.

VOLKER WILDE has finished his thesis at Frankfurt am Main and is moving to the Institut und Museum fur Geologie und Palaontologie der Universitat Gottingen, Goldsmidtstrasse 3, D-3400 Gottingen, West Germany. He will be working mainly on Lower Cretaceous floras from NW Germany (Barremian and Aptian) as well as on the Palaeogene.

The British Museum (Natural History) has a new telephone switch-board system which allows direct dialling to individual staff. The main switch-board number is 01 938 9123.

MARK CRAWLEY	938 9228
CHRISTOPHER HILL	938 9423
CEDRIC SHUTE	938 9416
JOHN RICHARDSON	938 8734
CAROLINE BELL	938 9345
A.C. SEWARD (room)	938 9318

OBITUARY

RICHARD GERMER 1903-1987

Richard Germer died on August 21, 1987 at the age of 83. He was born on November 26, 1903 in Otteweiler (Saar). Having finished his studies in 1924 he worked in some establishments and from 1926 to 1961 at different schools as teacher. After the Second World War Germer was a miner for two years in the Hirschbach colliery in the Saar Basin (1846-1948). Laterly he began with his palaeobotanical studies in this basin. In 1961 he became curator of the geological collections of the Bergingenieurschule at Saarbruecken-Von der Heydt. He arranged the collections of the museum and identified the fossils.
After his discharge from active service in 1967 he continued with

palaeobotanical and stratigraphic problems of the Saar Basin. Thus Germer became the specialist, especially of the ferns, of the fossil flora from the Saar Basin. He has described more than 25 new species.
Laterly he became the honorary president of the Society for the advancement of the Geological Museum at Saarbruecken. More than thirty publications often with noted colleagues demonstrate his style of work - quiet, steady, scientific and to the point. Germer was also interested in poetry and astronomy, proved by some of his other publications.
Germer was characterized by his modesty and his readiness to help. He was always full of energy and scientific plans. His sudden death is a loss to our subject. He will be missed by all who knew him personally or who corresponded with him.
D.H. STORCH, Schleusingen, GDR.

BOOK REVIEWS

NUMERICAL METHODS IN QUATERNARY POLLEN ANALYSIS. H.J.B. Birks & A.D. Gordon. 1985. vi + 317 pp. Academic Press. 59.00 dollars.
This book deserves (in some respects) to become a bible for all forward-looking geological pollen analysts. Whether it will actually attain this position is another matter, of which I am a little sceptical. Books of this kind need to maintain a fine balance between necessary mathematical rigour and boringness. Most pollen analysts are more interested in plants than in statistics - and quite right, too: similarly, few statisticians and mathematicians are interested in palynology, let alone competant at it. Obviously, this book attempts to bridge the gap between the two sides - and its authors are well equipped for the task, especially as John Birks is one of the most imaginative users of mathematical and statistical techniques on palaeo-ecological problems. Unfortunately, I don't think that they have got the mixture quite right. What is needed is a book that explains the mathematical and statistical methods in ways that the ordinary palaeoecologist can (half) understand, so that they can trust techniques that many are still inclined to regard as up--market voodoo. What W.W. Cooley and P.R. Lohnes (Multivariate Data Analysis. Wiley. 1971) did for educational psychology is needed for palaeobotanists, and I suspect that this volume is more likely to appeal to applied statisticians than palynologists. This is partly because of the way mathematical bits are handled.
A more disquieting feature of this book is the feeling it transmits, wrongly maybe, that the examples cited have been used because the various authors had happened to send the authors offprints of their articles, rather than because these were the most interesting and illuminatiing applications that the writers could find. The bibliography, likewise, slightly suggests quantity rather than quality.
R.N.L.B. HUBBARD, London, UK

GEOLOGICAL TIME SCALE 4th revised edition. Haq and van Eysinga, 1987. Elsevier, Amsterdam. Wall chart, Dfl. 45.00.
This revision of your present familiar wallpaper is larger and grander, and contains some new features which will dominate the conversation in your office as do the coloured wall decorations in an Indian restaurant. For it prescribes facts which are full of atmosphere and intellectual spice. Some of the new items on the menu are very hot: meat vindaloo sharpens the tongue.
It's all to do with the time scale, I suppose, which after all is what the thing is about. The Cretaceous / Tertiary boundary is set at 67 Ma.: not the more digestible 65. And this time there is vegetable curry which may appeal to the masses, but which connoisseurs of the dish may find too heavily garnished: this is the new item on the menu entitled "major biotic events". For us vegetarians this includes "first grasses" at 55Ma, "first diatoms" at 107Ma, "first flowering plants (angiosperms)" at 116Ma (at the Aptian / Barremian boundary), "first seed plants (Gymnosperms)" at 365Ma (in the Fammenian) and "first vascular land plants (Psilophytes); dinocysts" at 418Ma in the Late Silurian. The starters are just as interesting, with creative dishes such as "early land plants (s. lato)" at 470Ma in the Middle Ordovician.
Of course, because I'm a vegetarian I can't speak about the meat dishes, but I'm sure they must be alright. That is because the new wallchart is presented like a menu in one of the biggest international chains of fast-food restaurants. You know what you're going to get: something mass-produced, specially designed to appeal to as many consumers as possible: but without character and appeal to the specialist.
Elsevier, please quote in your ads.: "A Geological McDonald's". I prefer Maxim's, where there's art to the cooking, let alone its presentation. The 1983 North American time scale (Geology, 11, 504) should remain authoritative.
M.C. BOULTER, London, UK.

VII SIMPOSIO ARGENTINO DE PALEOBOTANICA Y PALINOLOGIA ACTAS, 1987, Edited by Sergio Archangelsky, Rafael Herbst and Wolfgang Volkheimer, 203 pages
This paperback volume was prepared for distribution to the participants during the 7th Symposium of Paleobotany and Palinology held in Buenos Aires, Argentina, April 13-14, 1987. It contains brief copy-ready manuscripts of 44 papers writen by 62 authors coming from Argentina, Australia, Brazil, Chile, Great Britain, Republic of South Africa, United States of America and Uruguay so the proceedings incorporate a broad perspective of intellectual thought brought to bear upon questions of paleobotany mostly centered in southern South America and Antarctica.
Most of the papers are set in the format of 3 pages of copy-ready text and one page of illustrations so the information given is brief. Many of the papers serve as introductions to topics, data and ideas treated by these authors in more detail in other papers they have written. When a paper is written in English a Spanish abstract is given and when a paper is written in Spanish an English abstract is given. This is an important volume because it

pulls together the work of active researchers with special interest in southern South America and Antarctic paleobotany and palynology including pollen studies of some living plants. The contributions are grouped into those dealing with paleobotany and palynology of the Paleozoic, the Mesozoic, the Cenozoic and the Antarctic.
D.L. DILCHER, Indiana, USA.

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IOP REGIONAL REPRESENTATIVES 1988

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