

INTERNATIONAL ORGANIZATION OF PALAEOBOTANY

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES -SECTION FOR PALAEOBOTANY President: Prof. W.G. CHALONER, UK Vice Presidents: Prof. E. BOUREAU, FRANCE Dr. S. ARCHANGELSKY, ARGENTINA Dr. S.V. MEYEN, USSR Secretary: Dr. M. C. BOULTER N. E. London Polytechnic, Romford Road, London, E15 4LZ, England.

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PLEASE MAIL NEWS AND CORRESPONDENCE TO YOUR REGIONAL REPRESENTATIVE OR TO THE SECRETARY FOR THE NEXT NEWSLETTER 25. The views expressed in the newsletter are those of its correspondents and do not necessarily reflect the policy of IOP.

IOP NEWS

SECOND INTERNATIONAL ORGANIZATION OF PALAEOBOTANY CONFERENCE, Edmonton, 1984. The conference will take place at Edmonton, Canada, from August 18 - 26th. The third Circular has recently been issued to all those who have registered to attend. There will be an informal Business Meeting of 10P at Edmonton in the early evening of Saturday August 25th. This is primarily to give the membership an opportunity to raise matters with the Executive Committee. Other items on the agenda will include methods of dues collection and newsletter distribution as well as a discussion about future 10P meetings (see page 2 of this newsletter).

NEW REGIONAL REPRESENTATIVE FOR SOUTH AMERICA

Dr S. Archangelsky has resigned after six years of service (IOP Newsletter 23, page 1), though he continues to be one of the three IOP Vice Presidents. Thanks are due to him for his strenuous work which has been particularly difficult over the last two years due to events which were sadly beyond IOP's control.

He is succeeded by Dr E. Romero, Departmento Cs. Biologicas, Ciudad Universitaria P2 4* P, Nunez, Buenos Aires, Argentina (who works with Tom Taylor at Columbus, Ohio, USA until October 1984). Palaeobotanists in South America should contact Dr Romero about membership, newsletter distribution and items to be included in future news+ letters.

APPRECIATIONS OF THE LATE T.M. HARRIS

Yet another appreciation has been received, this time from Dr S. Chitaley, Cleveland Museum of Natural History, Wade Oval, University Circle, Cleveland, Ohio 44106, USA. Copies can be obtained from her or from the IOP Secretary.

MEETINGS OF 10P

An item on the agenda of IOP's Business Meeting at Edmonton will be to recommend who hosts the Third IOPC. To aid this discussion here is a list of the sequence of recent meetings that are of particular relevance to IOP. Constitutionally, IOP meets only at its General Assembly during each International Botanical Congress, though there is room for manoeuvre on this tradition. The discussion will aim to determine members' current views on the status of IOP meetings. Alternatively, please write to the Newsletter with your suggestions.

	INTERNATIONAL BOTANICAL CONGRESS (IBC)	INTERNATIONAL PALYNOLOGICAL CONFERENCE (IPC)	INTERNATIONAL CONFERENCE OF SYSTEMATIC & EVOLUTIONARY BIOLOGY (ICSEB)	INTERNATIONAL ORGANIZATION OF PALAEOBOTANY CONFERENCE (IOPC)	IOP SPONSORED MEETINGS
1973			1st Boulder		
1974					
1975	12th Leningrad				
1976		4th Lucknow			
1977					
1978					
1979			1		
1980		5th Cambridge	2nd Vancouver	1st Reading	
1981	13th Sydney				
1982					
1983					Montpellier
1984		6th Calgary		2nd Edmonton	
1985			3rd Brighton		
1986					
1987	14th Berlin				
1988					

CORRECTION TO NEWSLETTER 23

The newsletter is typed by an amateur, and though proof-reading is shared, errors are often not detected until too late. Perhaps the newsletter editor gives too much priority to speed of publication and not enough to correcting proofs. (His one consolation is that London's The Times prints even more errors, and often doesn't appear at all due to industrial action.)

There was a particularly serious error on page 16, 15 lines down, of Newsletter 23, where one complete line was lost at typing. That should read (words omitted are underlined here): since all the Namurian A species that he records also occur in the Namurian B. However, few of the Namurian species apparently occur in earlier Carboniferous floras.

REPORTS & NEWS OF RECENT MEETINGS

ARBEITSKREIS FÜR PALAOBOTANIK UND PALYNOLOGIE, Freiburg, March 21-23 1984. The 14th annual meeting of APP attracted more than 50 participants. Most were from West Germany and some came from other European countries; a guest from China also attended the meeting. During the first day 16 papers were presented. One lecture summarised the importance of numerical taxonomy in palaeobotany, and another gave some new observations on Carboniferous and Lower Permian floras from the Black Forest and the Saar-Nahe region. Others gave contributions to the Rhaeto-Liassic flora of Franconia and new results from the "Wealden" of north west Germany. The main subject of the meeting was contributions concerning Tertiary floras, especially from the pre-alpine molasse and the oil shale of Messel. Pleistocene brown-coals of Greece and a palynological view of the settlement history of Berlin ended the session.

The field trip started in the Upper Palaeozoic basins of the northern Black Forest By great luck coal bearing strata had been exposed for a short time, and dumps from old mining areas gave the opportunity to collect some useful material. In the afternoon the party visited outcrops of Lower Permian strata and discussed

problems of the depositional environment. Next year, the APP has been invited to meet in Antwerpen, Belgium, probably from 1 - 4 April. The meeting will be organised by Dr David K. Ferguson, Laboratorium voor algemene Plantkunde, Groeneborgerlaan 171, B-2020 Antwerpen. VOLKER WILDE, Frankfurt. ASPECTS OF ANGIOSPERM PALAEOBOTANY, London, December 1983 Dr M. Collinson organised this afternoon meeting at King's College. There were eight twenty minute talks: P.R. Crane, Early fossil history of the Betulaceae H.P. Wilkinson, Pyritised twigs from the London Clay of Sheppey M.E. Collinson, Are there evolutionary lineages in the Stratiotes seed record? E-M. Friis, Organizational level in Cretaceous angiosperms P.D. Moore, Speculations on the development of the C_h and CAM photosynthetic pathways C.B. Cox, Interrelationships between the world's biogeographic regions-the plant and animal systems compared P.E.J. Wiltshire, Application of numerical techniques to pollen analysis R.A. Spicer, Taphonomic studies in modern volcanic areas. NEW WORK IN PALAEOBOTANY, London, March 22, 1984 About 50 people attended this meeting, which was organised by Dr B.A. Thomas. The aim was to introduce new palaeobotanists and their fields of research to fellow workers in botany, palaeobotany and palynology. H. Pearson, Structure and taxonomy of a Carboniferous lycopsid P. Kenrick, Enigmatic enations in an early zosterophyll U. Fanning, Diversification in Lower Devonian Rhynopsida C. Cleal, Recent advances in Upper Carboniferous plant stratigraphy - the alternative palaeobotany N. Rowe, Lower Carboniferous plant compressions J. Francis, Silicification of fossil wood in an evaporitic environment K. Bartram, Spore profiles through the Barnsley Seam of the Yorkshire Coalfield. PROGRESSIVE PALAEONTOLOGY, London, May 29th 1984 This research meeting was organised by Dr J. Francis at Bedford College and 5 of the 14 talks concerned fossil plants, ranging from the Lower Carboniferous fronds of N. Rowe (Bristol), the strange fossil Pachytheca presented by N. Burgess (Cardiff & BMNH) and the alga Solenopora which C. Brooke (Swansea) was trying to sort out. Aspects of palynology were covered by C. Thomas (Bedford College) with her work on the evolution of fossil spores and by James Penny (Cambridge) who discussed the early angiosperm pollen Afropollis. In addition, posters were displayed on the topics of the Indian Triassic flora (by Dr P. Pal of Lucknow), the Rhaetic bryophyte spore Naiadita (C. Thomas) and a Wenlockian macroflora from Wales (N. Burgess). James Penny also displayed SEM photographs of Afropollis and the use of fluorescence microscopy in palaeontology, particularly well illustrated on the Eocene floras of Messel, was presented by M. Collinson (London) and F. Schaarschmidt (Frankfurt). The speakers were all research students, most just in their first year, and must be congratulated for the very high standard of the talks. JANE FRANCIS, London.

OBITUARY

ELSO STERRENBERG BARGHOORN Jr. 1915 - 1984

Elso Barhoorn died peacefully in his sleep on Friday January 27th at the age of 68. He was born in New York City in 1915. After a youth that involved a growing enthusiasm for natural history, a stint as a deckhand on a Great Lakes freighter, and an undergraduate education at Miami University of Ohio (A.B. 1937), he entered

Harvard University for graduate study under the tutelage of I.W. Bailey and W.H. "Cap" Weston. Even as a graduate student. Elso's research interests were wide. ranging from studies of marine fungi to the evolution and development of ray cells. The latter proved to be his thesis topic (1941), but it was his mycological training that led to his being sent to Panama during World War Two to study fungal destruction of military equipment. This first visit to the rain-forest whetted his appetite for travel, and began a life-long love affair with the tropics. From 1941 to 1946, Elso was first an instructor and then an Assistant Professor at Amherst College, Massachusetts. Here his background in plant anatomy (the classical entry to paleobotanical studies) led him to investigate the College's "Natural History Cabinet", which contained the collections of the pre-eminent 19th-century geologist, Edward Hitchcock. The Amherst collections included specimens from the Brandon Lignite, a small brown coal in Northern New England. Elso recognized that this flora contained one of the few North American assemblages similar to the diverse and important fruit and seed floras of Europe. This discovery was well-timed, for in 1946. Elso returned to Harvard to fill a recently vacated position in palaeobotany. The switch permitted him to resume a vigorous research program, and he quickly moved to re-locate the Brandon Lignite and investigate its contents in conjunction with the first two of his many graduate students: William Spackman, who investigated the woods, and Alfred Traverse, sho studied the pollen. The latter thesis in particular reflected Elso's biological perspective on extinct plants - it was a unique and seminal contribution to palynology in that pollen grains were assigned to living genera and families (where possible), rather than to form taxa. However, Elso was never content to limit his interest to one corner of the stratigraphic record. In the early 1950's he became increasingly interested in the opposite end of the geologic column - the vast and virtually unknown world of the Precambrian. In 1954 he was simultaneously involved in the discovery of the world's oldest known coal, the 2 billion year old Michigamme coal of Michigan, and the description, with Stanley A. Tyler (University of Wisconsin), of fossilized microorganisms from the equally ancient Gunflint Iron Formation of Michigan. These experiences pointed the way the the future, and Elso will undoubtedly be most clearly remembered as the man who pushed the history of life back six-fold, founding the new discipline of Precambrian palaeontology. The lure of exploring the earliest stages of the earth's history drew Elso to all corners of the earth, form Australia to South Africa and Brazil; true to his inquisitive nature, Elso made a point of stopping everywhere in between! His approach to problems in paleobotany, and particularly those of the Precambrian, broadened in concert with his investigations and travels. He became increasingly interested and informed in the fields of microbiology and biogeochemistry, and applied these to his research. The lure of this intellectual adventure also drew students to him to join in the fun. First J. William Schopf, and then Stanley Awramik, Andrew Knoll and most recently Paul Strother. The record of the Precambrian was stretched by this group, both in time, to 3.5 billion years before present, and in diversity, as explorations revealed increasing morphological and ecological complexity. Even while this extensive programme was under way, Elso's mind roamed to other problems. As an advisor to the National Aeronautics and Space Administration, Elso helped develop a strategy for the biological exploration of the solar system. He examined moon rocks and meteorites and dreamed to the day when a Martian lander might return core samples from the Red Planet. Researches went in many other directions. With Richard Leo, Elso investigated the chemical origin of silicified fossils. This involved the creation of "artificial" petrifactions, and more than one visitor to Elso's lab was fooled by a "fossilised" store-bought mushroom. Elso was fascinated with palynology, and many students assisted him in this pursuit. Grace Bush undertook research on the palynology of Carboniferous peats and the pollen of Cordaites. Palynological examinations of the flowering plants included Elisabeth Wolfe Steeves' work on the Cretaceous sediments of Long Island and James Doyle's seminal work on the Cretaceous angiosperm pollen of the Coastal Plain in New Jersey and Maryland, In more recent sediments, Elso was involved in

Donald Whitehead's research on Quaternary communities and Alexandra Bartlett's work on the Holocene pollen flora of Lake Gatun in the Panama Canal - a study which was stimulated by Elso's abiding interest in climatology and the tropics. Umesh Bannerjee investigated the origin of cultivated corn in Mexico. While neither were directly his graduate students, both Margaret Davis, working on Quaternary palynology, and James Walker, studying the morphology and systematics of modern angiosperm pollen, were greatly influenced by Elso's guidance. Elso's last student, Cecelia Lenk, worked on a palynological examination of the late Pleistocene and Holocene vegetation and flora of northern New England and the Canadian Maritimes. Elso's love and interest in his first palaeobotanical project never waned during all this time, and the Brandon Lignite provided thesis materials for Richard Eyde, who exhaustively treated the four species of Nyssa endocarps and the one species of Alangium, and Bruce Tiffney, who is monographing the remaining fruits and seeds in the flora. During all of this time, Elso taught courses in paleobotany, paleoclimatology and plant evolution. Many former undergraduates and graduate students will long remember that gravelly voice recounting having seen some interesting phenomenon, plant, fossil or other, dragging up some incredibly obscure piece of minutiae which was exactly pertinent to the discussion under way. Through his courses he exerted a strong influence on the education and imaginations of two generations of Harvard students, including important palaeobotanists such as Jack Wolfe, Jane Gray and Ann Raymond.

In a personal perspective, Elso's unique and special contribution lies not in his accumulation of papers, or in the multitude of new facts that they contain. Rather, it lies in the values of intellectual inquiry which he passed on (by osmosis - it was never a perceptible process) to those around him: a sense of reliance on self and instinct; a high value on generalism, on being interested in everything, even in the face of the knowledge that there is "too much to know"; a distaste for myopic and narrow views of science; and above all, a sensitivity to the place of ideas in science - that facts have their greatest value in the light of hypotheses. Behind all of this was the human being, gruff and often a bit difficult, but a very sensitive man who gave students all the help and support that he could, often in strange ways, but always with sincere and deep interest. These were his gifts to his students; ideas and their value, and the infinite pleasure of pursuing them. As with all great teachers and thinkers, while he is no longer with us, these values will remain in his students, and in their students who follow.

A memorial service was held in the geological lecture hall of Harvard University on April 25th. The family has requested that any memorial contributions be sent to the Elso S. Barghoorn Fund, Department of Geological Sciences, Harvard University, to be used for the benefit of graduate students field research in paleontology.

BRUCE H. TIFFNEY, Yale ANDREW H. KNOLL, Harvard

DISPERSAL AND PLANT ASSOCIATIONS

This note is about the principles of the determination of organic connections of plants' dispersal parts using the composition of plant associations in the localities. It relates more to the logic of palaeobotany than to its concrete problems and achievements. In our investigations of the Permian Flora of the Petchora basin we pay a great deal of attention to the establishment of connections between the dispersal parts (leaves, seeds, etc). One of the methods we use is an observation of the composition of the plant associations. This has made it necessary to formulate some general principles on which we can base our judgements. The principles that we have formulated help to estimate the consequences from single propositions, which in this case concern the composition of plant associations in order to study organic connections. Our rules are empirical generalisations of the observations of the composition of plant associations in the concrete localities.

In order to make a systematic study of associations of dispersed plant parts aimed at determining the organic connections, we have formulated general principles. Two dispersed parts, A and B, of the same plant can be considered as a cause, or one of the causes, of their presence in a given association. In this respect the establishment of organic connections of parts does not differ from clarifying causal dependence of any other phenomena. The principles of the establishment of causal relationships were first formulated by Hershel (1832) and then generalised by Mill (1843) and came to Logic under the title: "Mill's experimental methods". They indicate characteristic features which can be used to distinguish the causation of phenomena from their ordinary coexistence or consequence. We are transfering these principles, formulated in abstract form, to the language of concrete palaeobotanical investigations.

1. If the composition of two or more associations where part A occurs only in the presence of part B, then the cause (or one of the causes) of this may be their belonging to the same plant.

Such associations are proposed to be called the Conjunct Associations (term of S.V. Meyen).

2. If the association: where part A is present and the association where it is absent have the same composition of plant remains, with the exception of part B (which is present in the Conjunct Association), then the cause, or one of the cause, of this may be their belonging to the same plant.

Such associations are called Elimination Associations.

3. If two or more associations where part A is present, and they have in common the presence of part B only, and at the same time two or more associations where part A is absent are similar in the absence of part B only, then the cause, or one of the causes, of this may be their belonging to the same plant.

4. If the association contains parts A, B, C, D, E, etc, but it has already been known that C and E parts belong to another plant than all the others, then parts A, B, D, etc may belong only to the same plant.

5. If part A appears, changes in number and disappears in the section together with part B, then the cause, or one of the causes, of this may be their belonging to the same plant.

Two empiric rules may be added to these principles:

A. The Rule of Dominance: The most widespread dispersed plant parts (seeds, leaves, etc) occur mainly by the accumulation of the most rare of two or three species in a given locality on a given bedding plane.

This proposition is correct for the majority of the localities of Upper Palaeozoic floras of Angaraland.

B. The Tom Harris Rule: If fossil plant fructifications occur in a stratum, then famong the vegetative parts must be the ones which belong to this species.

From the point of view of the first three Principles the most important are autochtonic mono- or oligodominant localities. The application of these principles require the exact diagnosis of the dispersed parts. Throughout it is important to remember S.V. Meyen's Phenomonon of Transitive Polymorphism: the closer taxa are related, the more cross of characters they demonstrate.

1.A. IGNATIJEFF, Moscow & E.I. POLETAEVA, Syktyvkar, USSR.

MODERN ANALOGUES OF PERMINERALIZATION

Robert A. Gastaldo, Department of Geology, Auburn University, Alabama 36830, USA has submitted a bibliography of this topic.

"I have just returned from the joint meeting of the southeast - northcentral GSA in Lexington, KY. At that meeting, Neuzil and Cecil (USGS, Reston) gave a paper on a modern analog of low-ash, low-sulfur, Pennsylvanian-age coal. Their talk was based on the work of a few scientists studying raised peat swamps in Malesia. I had run across these publications about 2 years ago and had referenced them in the presentation and manuscript of the ICC in Madrid....."

"These studies are essential to the paleobotanical community's understanding of possible conditions under which permineralized peats may be formed, in addition to an

analog with respect to floristic patterns and edaphic conditions existing today in peat swamps of the tropics."

Anderson, J.A.R. 1961. The ecology and forest types of the peat swamp forests of Sarawak and Brunei in relation to their silviculture. Thesis. University of Edinburgh. 117pp.

Anderson, J.A.R. 1963. The flora of the peat swamp forests of Sarawak and Brunei, including a catalogue of all recorded species of flowering plants, ferns and fern allies. Gard. Bull. Singapore, 20(2), 131-228 (This contains a brief overview of the communities in the peat swamps and an extensive taxonomic survey.)

Anderson, J.A.R. 1964a. The structure and development of the peat swamps of Sarawak and Brunei. J. Trop. Geogr., 18, 7-16 (This contains community structure and some information concerning the composition of the peats.)

Anderson, J.A.R. 1964b. Observations on climatic damage in peat swamp forests in Sarawak. Emp. For. Rev., 43(2), 145-158 (Discussion of the impact of high winds and storms on the forest communities - compare Anderson's observations with those of Scheihing, 1980.)

Anderson, J.A.R. 1976. Observations on the ecology of five peat swamp forests in Sumatra and Kalimantan. Soil Res. Inst. Bogor Indonesia. Bull. 3

Anderson, J.A.R. 1983. Tropical peat swamps of western Malesia. In: Gore, A.J.P. (Ed.) Ecosystems of the world, 4B Mires: swamp, bog, fen and moor. Regional Studies. Elsevier Scientific Publishing Company, Amsterdam, 181-199 (A review.)

Andriesse, J.P. 1964. The use of Sarawak peat for agriculture. Dept. Agric., Sarawak, Malaysia, Res. Circ. 4.

Andriesse, J.P. 1972. The soils of west Sarawak. Government Printing Office, Sarawak, Mem. 1

Andriesse, J.P. 1974. Tropical lowland peats in south-east Asia. Dept. Agric. Res., R. Trop. Inst., Amsterdam, Commun. 63

Driessen, P.M. & Soepraptohardjo, M. 1974. The physical properties of lowland peats from Kalimantan. Soil Res. Inst., Bogor, Indonesia, Bull. 1

Potonie, H & Koordors, S.D. 1909. Die Tropen-Sumpfflachmoor-Natur der Moore des Produktiven Carbons. Jahrbuch der Königl. Preufs. Geol. Landes. Bd.30, 1, 3, 389-443.

Wyatt-Smith, J. 1959. Peat swamps forests in Malaya, Malay For. 23.

"The significance of these references has always been understated in palaeobotanical literature and understanding of the conditions and communities of peat forming environments in equivalent geographical conditions of the present. Too long have paleobotanists relied on modern analogs of temperate regions to explain the tropical conditions of the Carboniferous."

REVISION OF INDIAN SPECIES OF Glossopteris

"The comments and reply in the IOP Newsletters 22 and 23 on this topic persuade me to express some views on the subject in which I am engaged. Starting my research career in palaeobotany in 1962 with a project on the Glossopteris flora of Indian Lower Gondwana, I found myself in total disappointment in the first two years as far as the identification of Glossopteris leaves was concerned. To avoid the confusions of identifying Glossopteris leaves I decided to re-examine each individual species of the genus recorded from different parts of Gondwanaland by studying the original specimens. This work is published as: "Revisional study of 25 species of Glossopteris recorded from India and Australia", Banerjee, 1968, 1972, 1978 and Banerjee & Ghosh, 1970..... However, information about a number of Glossopteris species is still not available to me; the original description and illustration of which are too insufficient for comparison (see my request in IOP Newsletter 15). Yet, these species cannot be ignored particularly when a new species is to be made. H.K. Maheshwari (1966) also felt this way about the problem or correct identification of Glossopteris leaves and suggested some methodology in describing a species. Against this background I was rather confused by the title of the publication of Chandra & Surange as "Revision of 'Indian' species of Glossopteris". However, the

publication is helpful as the authors have brought together at one place all the information about Glossopteris leaves from India.

They have emended a number of species of <u>Glossopteris</u> but quite a good number of the emendations and new species need further revision. For example, the details of the number and present location of the original specimens of <u>G. leptonema</u> Bunb., <u>G. musaefolia</u> Bunb. and <u>G. stricta</u> Bunb. are incorrect (these points have been revised by Ghosh in Science & Culture, 47, 250-252, 1981).

It is difficult to agree with Chandra and Surange in paragraph 4 of their reply (10P Newsletter 23) that "there are no Australian species in India" and "no Indian species in Australia either". Dr John Rigby, the Australian collaborator of the authors in this observation, published a paper in 1978 (Geol. Surv. Qd. Publ. 367, 14-24) describing and Illustrating Senotheca murulidihensis Banerjee 1969, the type of fructification emerging from the petiolar base of a Glossopteris leaf from the late Permian Illawarra Coal Measures of New South Wales. The preservation of the leaf is not good but it appears to be like <u>G. clarkei</u> Feistm. (first recorded from Australia) and similar to the species bearing <u>S. murulidihensis</u> described from the Upper Permian of Indian Lower Gondwana. I have also examined the specimen Illustrated by Rigby (specimen F2913 of the Department of Mines at the Sydney Geological Museum). In the same publication, Dr Rigby described other glossopteridean fertile organs which are very common in Indian and South African lower Gondwana deposits. I feel it is too hasty to conclude that Indian and Australian Glossopteris species are entirely different.

The reason for the nonavailability of the same species in Australia and India, if that is really so, may be considered as mere chance and of course due to the insignificant number of workers in this field. We Indian palaeobotanists have failed to search out a second specimen similar to the much discussed Ottokaria bengalensis specimen described by Zeiller in 1902. Further, we had to wait 130 years to know about the reproductive structures of Glossopteris; Brongniart first reported the genus in 1822 and Plumstead described the fertile organs in 1952."

MANJU BANERJEE, Calcutta.

FRENCH GROUP VISITS THE USSR

Through the French-Soviet programme of research in palaeobotany, established by Professor Y. Lemoigne and Dr S.V. Meyen, Drs J. Doubinger and L. Grauvogel-Stamm from Strasbourg spent four weeks in the USSR in the Spring of 1984. They visited Leningrad, Kiev and Moscow. In Leningrad Dr N.S. Snigirevskaya showed them a new lycophyte genus, <u>Takhtajanodoxa</u>, and at the V.S.E.G.E.I. they saw some interesting Triassic plant collections of Sixtel and Prynada. Dr I.N. Srebrodolskaya showed them a Lower Triassic flora from the Far East and Dr V.P. Vladimirovitch helped examine a fertile specimen of <u>Neocalamites</u>. In Kiev, Dr F.A. Stanislavsky showed and explained his beautiful collections of Upper Triassic plants from the Donetz basin which is stored in the Museum of the Academy of Sciences of Ukrain. Dr E.V. Semenova demonstrated the corresponding palynological assemblages. Professor Teslenko showed them some Jurassic plants.

The last two weeks of the trip were spent in Moscow at the Geological Institute where they studied Permian, Triassic and Jurassic plants from different parts of Angaraland, and discussed ages, correlations and phylogeny. Dr M. Durante showed them a Permian flora of Northern China (Nanshan) which she has just studied. With Dr O. Jaroschenko and Dr E. Obonitskaya they examined Triassic palynological assemblages from different parts of Angaraland.

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L. GRAUVOGEL-STAMM, Strasbourg.

NEWS OF OTHER ORGANIZATIONS

ORGANISATION FRANÇAISE DE PALEOBOTANIQUE (0.F.P.)

French palaeobotanists have voted in favour of forming this new organization. It aims to promote the closest possible collaboration between the different laboratories in France that are working in the fields of palaeobotany and

*palynology. The Executive Committee met for the first time in Paris on March 14th 1984 and is composed of: J. Médus, Marseille (President); C. Brousmiche, Lille (Secretary); J. Holmes, Montpellier (Treasurer); and three assessors, G. Barale, Lyon, D. Pons, Paris, and L. Grauvogel-Stamm, Strasbourg. Professor E. Boureau has accepted the post of Honorary President.

PEABODY MUSEUM OF YALE UNIVERSITY

In a move associated with the development of new programs, the New York Botanical Garden has donated its Paleobotanical Collection to the Peabody Museum of Yale University. This doubles the size of the Peabody Collection to nearly 30,000 specimens, and greatly increases its scope. The Botanical Garden Collection contains a wide range of historically important assemblages. It is the repository for many type specimens of leaves from the late Cretaceous floras of the New England, New York and New Jersey, described by Hollick and Berry around the turn of the century. This includes specimens from Martha's Vineyard, Staten Island, Kreischerville, the Amboy Clays and Cliffwood Beach. It also houses the extensive collections of Herman Becker from the Oligocene Ruby, Beaverhead, York Ranch and Metzel Ranch floras of Montana. Additionally it is rich in representative collections of angiosperms of western North America, including Cretaceous floras from Montana, South Carolina, the Dakota group, Carbonado and Bellingham Bay, Washington, Vermejo, New Mexico, and Tertiary floras from the Fort Union Beds, Florissant, John Day, Bridge Creek, Yellowstone, Collwash, Goshen and other classic localities. Particularly notable are several small collections of Tertiary plants from Antiqua, Brasil, Bolivia, Puerto Rico and Trinidad. The Botanical Garden acquisition complements the Peabody's strength in Paleozoic and particularly Mesozoic floras, providing the combined collections with excellent stratigraphic and geographic coverage of all but the Devonian and portions of the Southern Hemisphere. The collection is under the curatorial direction of Bruce H. Tiffney. Those interested in obtaining loans from the combined collections should submit loan requests to him at: Peabody Museum of Natural History, Yale University, Nox 6666, New Haven, Connecticut 06511, USA. Palaeobotanical visitors are welcome to visit and examine the collection.

INTERNATIONAL ORGANIZATION OF PLANT BIOSYSTEMATISTS (IOPB)

Now, this functions independently of its parent organization, the IAPT. It is open to all people working or interested in the fields of plant biosystematics and evolution. Membership costs US\$25 for the period between two Botanical Congresses and this includes subscription to the IOPB Newsletter. The editor of this is Dr Krystyna Urbanska, Geobotanisches Institut ETH, Zürichbergstrasse 38, CH-8044 Zürich, Switzerland. Contributions to the newsletter in the form of personal research data, short feature articles, news about meetings, publications, requests for material or information etc are welcomed.

PALYNOLOGICAL & PALAEOBOTANICAL ASSOCIATION OF AUSTRALASIA (PPAA) Newsletter 8 was printed in January 1984 and contains PPAA News, further free reprints, a chairman's letter and an account of the AASP SanFrancisco meeting. There is also a picture of leaf miners on the holotype of <u>Pisonia oliver</u>i.

NEWS OF INDIVIDUALS

J-P. LAVEINE & C. BROUSMICHE from the University of Lille were both awarded "Paul Bertrand" prizes in 1983 in recognition of their work in palaeobotany of Carboniferous floras. C. BROUSMICHE was awarded her doctoral degree in November 1983.
M. FEIST & N. GRAMBAST-FESSARD organised a second course of lectures on fossil charophytes in the Paleobotany Laboratory at the University of Montpellier in January 1984. There were six participants from four countries.
S. ASH ended his visit to the Anderson's in Pretoria in June 1984. He stopped by in London on his way back to America, and spent a day on the Isle of Purbeck looking at the Fossil Forest.
J. FRANCIS of Bedford College London will visit the Tree-Ring Laboratory at the University of Arizona, in July. She then travels to the National Center for Atmospheric Research, in Boulder, Colorado. She also plans to undertake field work in the Arizona Petrified Forest, with S. Ash. A.K. PAL has taken the position of Reader in Botany at Jadarpur University, Calcutta, and is busy organising teaching and research in palaeobotany there. A.R. RIDDICK from the Palynology Research Unit at North East London Polytechnic starts a two year contract with Gearhardt Ltd in Singapore in August. He will be working on commercial applications of Tertiary palynology. W.G. CHALONER continues his international activities. Already this year he has visited Hong Kong and Denmark and later he plans to travel to Calgary.

- visited Hong Kong and Denmark and later he plans to travel to Calgary, Edmonton and Vancouver, as well as Italy. He has also spent a few days in London. British Airways are now making a profit for the first time for many years.
- J. CANRIGHT is on safari in Kenya during early July.
- J. WATSON & B.A. THOMAS were in East Germany, together, in the spring, and visited the Geological Museum and Dresden.

BIBLIOGRAPHY

BIBLIOGRAPHY & INDEX TO PALAEOBOTANY & PALYNOLOGY 1950-1970; 1971-1975 The recent publication of the second part of this bibliography was announced in IOP Newsletter 23, page 12. An order form is attached to this Newsletter 24.

BIBLIOGRAPHY OF AMERICAN PALEOBOTANY 1982

This is compiled under the auspices of the Paleobotany Section of the Botanical Society of America by Gary E. Dolph. It is available from him at: Indiana University at Kokomo, Kokomo, Indiana 46902, USA. It contains an International Supplement supplied by H. Pfefferkorn and W. Gillespie.

BOOK REVIEWS

EARTH'S EARLIEST BIOSPHERE. ITS ORIGIN AND EVOLUTION. J.W. Schopf (Editor), 1983. Princeton University Press, Princeton, New Jersey. ISBN 0 691 08323 1 and ISBN 0 691 02375 1. Hardback US\$ 123.50, paperback US\$ 42.50 383pp.

The ambitious and all-embracing title of this volume represents a brief description of the end-point of the studies of the Precambrian Palaeobiology Research Group (PPRG) brought together by J.W. Schopf in 1979-1980. The book presents the results of reviews and new work carried out by a group of scientists from various disciplines which all relate to the problems associated with the recognition of early life forms from their fragmentary fossil record. The group included practical geologists, biologists, mineralogists, petrologists, geochemists (inorganic, organic and isotope studies), meteorologists, geochronologists, and a number of others whose interests are theoretical. The extent of individuals' contributions, both to the actual work and to the volume, is variable depending upon the amount of time that each was able to spend with the group and give to group activities. The large scale of the venture was made possible by a personal prize to J.W. Schopf (the Alan T. Waterman Award of the US NSF) plus funds from other sources.

In consequence of the galaxy of talent gathered together by Schopf a great deal is anticipated from this large volume. It is as meticulously assembled as one would expect from this Editor. Four voluminous appendices describe the source of each sample, the methods used for processing the rock and "abiotic" samples, and organic geochemical procedures. Two glossaries are provided for technical terms, and terms used in cellular and sub-cellular biological processes. The subject index is adequate, but some important and relevant recent references are omitted (perhaps because of publication delays?).

The book itself cotains 15 chapters and the text consists of 383 A4 pages in double column format. It is well illustrated with line drawings, but some of the photographic illustrations have appeared elsewhere, and some show badly preserved

of Early Triassic leaves externally similar to Dicroidium lancifolium may restore biostratigraphic resolution. From my own experience, I think it more likely that such studies would demonstrate that each locality and stratigraphic level contains discrete populations of leaves showing different natural variation. The Andersons' population approach provides accurate assessment of natural variation and standing diversity, but is difficult to apply to biostratigraphic problems. A more conventional, form-taxonomic treatment, like my own, while useful for studies of biostratigraphy and functional morphology, has admittedly little firm biological basis. There has been much written on the long standing dispute between advocates of natural taxa and form taxa in palaeobotany. In what may appear to be largely a taxonomic work, the Andersons have made a strong claim for natural taxa of fossil leaves. This volume is exceptional value at its reduced price for IOP members, and it should be in every palaeobotanical library. The authors have expressed to me some disappointment at the bright colour of the cover (purple: the international geological map colour for Triassic rocks), so we can look forward to a rainbow of additional volumes on South Africa's palaeobotanical riches.

GREG RETALLACK, Oregon, USA.

RECONSTRUCTIONS OF LANDSCAPES IN THE PRINCIPAL REGIONS OF CHINA THROUGHOUT GEOLOGICAL TIME. Xu Ren (Hsu Jen) - author & Wang Xiu-Qin - artist, 374 x 260mm. soft cover, Chinese price Yuan 9.00 (in Chinese, with Latin nomenclature). A more accurate reference and an address of an international book distributor will appear in a future 10P newsletter. Note that in this review the 'old' spelling of names is given in brackets following the Pin-ying spelling.

This book, well printed on heavy paper in full colour, depicts 25 scenes based on Chinese fossil evidence dating from Precambrian stromatolite occurrences to three reconstructions of various Holocene occurrences. Most of the reconstructions occupy a whole page with the text in Chinese on the facing page. The only exception in the double page painting (24) of the subtropical vegetation of Zhejiang (Chekiang).
Professor Xu Ren (Hsu Jen) has kindly supplied me with translations of the titles:
1. A scene in north eastern China during the age of Cyanophyta during the Precambrian.
2. A scene in North China during the age of the large-sized algae of the early Palaeozoic.
3. An Early Devonian landscape in eastern Yunnan during the age of the Psilophyta.
4. A landscape in Chungdu (Chengtu) during the age of the lycopods and sphenopsids in the Early Carboniferous.

5. A scene of swamp forests in North China during the Late Carboniferous.

6. A scene of swamp forests in Yunnan during the Early Permian.

7. The Cathaysian flora of East China during the Late Permian.

8. The Gondwana flora in southern Xizang (Tibet) during the Permian.

9. The Angara flora in the northern part of north eastern China during the Late Permian.

10. The Middle Triassic arid-land flora of North China.

11. The flora of south eastern China during the Late Triassic.

12. The flora of Inner Mongolia during the Middle Jurassic.

13. The flora of north eastern China during the Late Jurassic.

- 14. The subtropical flora of north eastern China during the latter part of the Early Cretaceous.
- 15. The southern subtropical arid-land flora of Jiangxi (Kiangsi) in the Palaeocene.
- 16. The northern subtropical broad-leaved deciduous forests of north eastern China during the Eccene.
- 17. The tropical mangrove flora along the coast of Guangdong (Kwanung) during the Early Oligocene.
- 18. The southern subtropical broad-leaved evergreen forest of Yunnan in the Oligocene.
- 19. The warm temperate broad-leaved deciduous forests in Shandong (Shantung) during the Miocene.
- 20. The subtropical evergreen Quercus semecarpifolia Cedrus forests in the Himalayan region during the Pliocene.
- 21. The temperate broad-leaved deciduous forests of Beijing (Peking) during the Middle Plaistocene.

22. The spruce forests of Weinan, Shansi (Shensi) during the Late Pleistocene. 23. The subtropical alpine grasslands in northern Xizang (Tibet) during the Holocene. 24. The subtropical vegetation at Yuyao, Zhejiang (Chekiang) during the Neolithic. 25. The temperate grasslands in Inner Mongolia during the Holocene. This series of paintings provides a picture of the successions of floras that have occurred not only in China, but throughout East Asia, at times similar to elsewhere in the world, but at other times, purely endemic. Small, unobtrusive numbers are used to identify the various species on the paintings. A general comment is that none of the reconstructions are overloaded with species, which means that the scenes portrayed give one the feeling that the artist has painted something he has seen, not something imagined. Most scenes use familiar reconstructions of plants, e.g. for the Jurassic Bennettitales and Cycadales, which in my opinion may have been better labelled the other way round. Perhaps the painting of the Miocene scene (19) from Shandong (Shantung) could have been more ambitious considering the variety of well preserved floral and faunal remains in the diatomite of Shanwang village. The scene shows only a frog, besides a number of broad-leaved trees beside a river. However, this is a trifling comment.

This book has given me much pleasure to look at, and is based on scientific observation. I thoroughly recommend it, although many others, beside myself, will be unable to read the Chinese text.

JOHN RIGBY, Brisbane, Australia.

OBITUARY - LATE NEWS

PÁL GREGUSS 1889 - 1984

Professor Dr Pál Greguss of the University of Jozsef Attila, Budapest, Hungary, died at the age of 95 on 23 March 1984. There was a memorial service at the University Centre Building on 16th April.

Professor Greguss had been a leading palaeobotanist in Hungary for many years. He had been Head of the Department of Botany over several decades and had achieved many honours, both nationally (the Hungarian Republic Flag, the Workers' Distinguished Medal and the Kossuth Prize) and internationally from India and Germany.

BIBLIOGRAPHY AND INDEX TO PALAEOBOTANY AND PALYNOLOGY

IOP ORDER FORM

PART 1. 1950 - 1970. 1974. 619pp. two volumes The first part of this work, covering the world literature during the period 1950 - 1970, was compiled and edited by the late Hans Tralau at the Swedish Museum of Natural History. The Bibliography contains approximately 25,000 literature references. The Index contains all relevant key-words referring to the contents of publications listed in the Bibliography. PRICE: Sw crowns 350. US\$ 64

PART 2. 1971 - 1975. 1981. 463pp. two volumes A second part, covering the world literature during the period 1971 - 1975 was published at the end of 1981. These two volumes contain approximately 15,000 literature references. PRICE: Sw crowns 250. US\$46

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