

IOP NEWSLETTER 5

INTERNATIONAL ORGANIZATION OF PALAEOBOTANY

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES

SECTION FOR PALAEOBOTANY

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PLEASE MAIL NEWS AND CORRESPONDENCE TO YOUR REGIONAL REPRESENTATIVE (see last page), OR TO THE SECRETARY, FOR INCLUSION IN THE NEXT (APRIL, 1978) NEWSLETTER.

IOP NEWS

MEMBERSHIP

At January 6th 1978 the dues from 137 palaeobotanists had been received by the secretary. About 25% of the currently paid-up members have also paid their dues for 1978 and later. For those who pay after November 1st in any year membership will be assumed to start in the following year, if they have not joined before.

NEWSLETTER DISTRIBUTION

Previous newsletters have been distributed in various ways, and the system is likely to develop more sophisticated methods in the future. Surface mailing of copies duplicated in London has proved to be very slow, especially with various dock strikes, and since direct air mailing from London is very expensive it has been decided that regional duplication will be undertaken this time in Australia, southern Africa and the United States, from an air mailed master copy. East Europe, south America, USSR, India and China will also duplicate their own copies and distribute them by their own systems.

FINANCES

Our application to IUBS for a grant of \$500 "to insure regular distribution of the IOP Newsletter" was unsuccessful, and so a financial crisis persists. We will be making another application during 1978. The present balance of our accounts is:

Income: cash reserves at April 1977	US 238
1977 dues received at January 6th 1978	548
	<hr/> 786
Expenditure: stationary & printing.....	40
typing newsletters 4 & 5	140
duplicating newsletters 4 & 5	180
postage.....	340
	<hr/> 700

ADDRESS LIST PRINT-OUTS

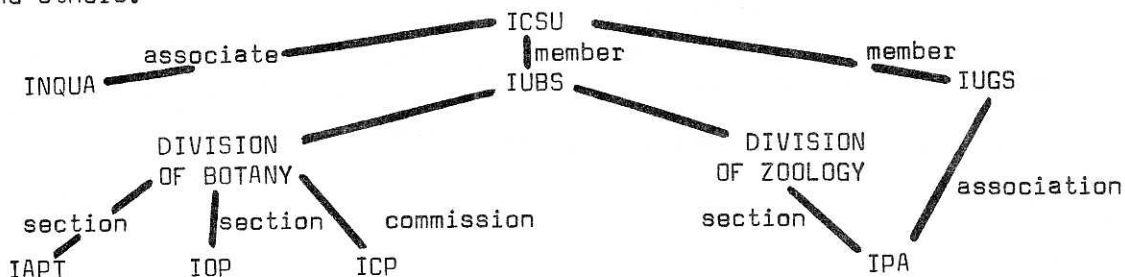
The names and addresses of all palaeobotanists who responded to the late secretary's questionnaire in 1976, together with others who have paid their membership dues during 1977, have been computerised at North East London Polytechnic. This has been done primarily to make efficient mailings to members, though there is another useful purpose - print-outs on 35cm wide computer paper can be obtained quickly and cheaply. Some IOP members have expressed interest in having a copy of the list as an up to date record of addresses for palaeobotanists throughout the world. FREE COPIES are available to members of IOP who have paid their \$4.00 dues for 1978. Please write directly to the secretary for a copy of the list, or mention your requirements to your regional representative when paying your 1978 dues.

IOP QUESTIONNAIRE

The late IOP secretary, Hans Tralau, received completed questionnaires from over 300 palaeobotanists, giving details of name, address and current research interests. If you would like to use this data to help communication between palaeobotanists, please write to the secretary before February 28th 1978. The pile of completed papers will then be sent to you, either permanently or temporarily, depending on the response.

INTERNATIONAL STATUS OF IOP

In trying to establish the relationship of IOP with other organizations in the International Council of Scientific Unions (ICSU), your secretary found the kind of confusion and disagreement that is more often associated with fossil plant taxonomy. The chart reproduced below offers a description of IOP's status, according to information kindly provided by the IUBS Executive Secretary Dr P.H. Bonnel, Paris, and others:



IAPT - International Association of Plant Taxonomy. Chairman: Prof A. Takhtajan, Komarov Botanical Institute, Popov Str. 2, Leningrad 197022, USSR. Secretary: Prof F.A. Stafleu, 1902 Tweede Transitorium, Uithof, Utrecht, Netherlands.

ICP - International Commission for Palynology. President: Prof A. Traverse, Palynological Laboratory, 529 Deike Building, University Park, Pennsylvania 16802, USA. Secretary: Dr G. Norris, Department of Geology, University of Toronto, Canada M5S 1A1.

IPA - International Palaeontological Association (formerly IPU). President: Dr C. Teichert, Department of Geological Sciences, University of Rochester, Rochester, NY 14627, USA. Secretary-General: Dr O. Walliser, Geo. Pal. Inst., Goldschmidt Str., D-3400 Göttingen, FRG.

RELATIONSHIPS WITH OTHER ORGANIZATIONS

It has been tentatively suggested that international palaeobotanical organisations outside the scope of the International Council of Scientific Unions may benefit by the instigation of some kind of new organisational affiliation to IOP (and thus to IUBS, ICSU and UNESCO). Open discussion is clearly necessary, so please write to the secretary with your views. The aim is to promote international cooperation in the study of palaeobotany and to obtain more money for our studies from the recognised international sources.

REGIONAL REPRESENTATIVE FOR THE PEOPLE'S REPUBLIC OF CHINA

Prof Chao King-koo has very kindly written to say that IOP newsletters will be distributed by their own duplication and posting systems to the palaeobotanists of China. Prof Chao's address is: Nanking Institute of Geology and Palaeontology, Academia Sinica, Chi-Ming-Scu, Nanking, People's Republic of China.

FORTHCOMING MEETINGS

FIRST SYMPOSIUM ON MESOZOIC CONTINENTAL ECOSYSTEMS: AN INTERDISCIPLINARY APPROACH September 5th - 10th 1978, Paris.

Sessions will be held at the Institute de Paleontologie, Museum National d'Histoire Naturelle, and the Societe Geologique de France will devote a specialised session to the meeting and may publish the results. Of the eight topics to be considered at the meeting the following are of most significance to IOP members:

number 4 PALAEOBOTANY Chairman J.C. Koeniguer, Paris
number 7 PALAEOCLIMATOLOGY chairman P. Robinson, London
number 8 PALAEOBIOGEOGRAPHY chairman C.B. Cox, London.

An excursion to the Mesozoic of Normandy will take place on September 9th and 10th. Further details and copies of the first circular can be obtained from M P. Taquet, Institut de Paleontologie, Museum National d'Histoire Naturelle, 8 rue de Buffon, 75005 Paris, France.

SYMPOSIUM ON TROPICAL BOTANY August 10th - 15th 1978, Aarhus, Denmark.

In the Autumn of 1978 the University of Aarhus celebrates its 50th anniversary, and to celebrate the Botanical Institute has arranged a symposium on tropical botany. The aim of the symposium is to bring together scientists working with taxonomy and plantgeography from various parts of the tropics and to discuss matters of general interest. A number of invited speakers will open the sessions of the symposium; there will be possibilities for other participants to present papers.

The papers will be planned to concentrate on the following subjects: History of Tropical Floras, Present Distribution of Vegetation Types, Present Distribution of Taxa, Relation between Distribution of Taxa and Vegetation, Theories of Distribution Types.

The first circular was available in August 1977 and can be obtained along with other information from Dr K. Larsen, Botanical Institute, University of Aarhus, 68 Nordlandsvej, DK-8240 Risskov, Denmark.

BOTANICAL SOCIETY OF AMERICA (BSA) - PALAEOBOTANICAL SECTION

The next meeting of the Paleobotanical Section will be held June 25th - 30th, 1978 at Virginia Polytechnic Institute in Blacksburg, Virginia.

Foreign colleagues are invited to attend. Write to Prof. Charles N. Miller, Jr., Department of Botany, University of Montana, Missoula, Montana 59801, U.S.A. for details of the meeting. There will be one or two field trips associated with the meeting to Triassic and Mississippian localities

LINNEAN SOCIETY OF LONDON PALAEOBOTANY GROUP, April 18th 1978, London.

There will be a one day meeting, consisting of lectures and demonstrations, in the new Palaeontology Building at the British Museum (Natural History). Please write to Dr P. Barnard, Botany Department, University of Reading, Whiteknights Park, Reading, for details.

REPORTS OF RECENT MEETINGS

PALAEOBOTANY AND PALYNOLOGY IN BRAZIL, SAO PAULO, December 1977.

A recent Paleobotanical and Palynological Program at the University of Sao Paulo (December 8-9th, 1977) included 22 contributions, ranging from neopalynology to fossils of the Precambrian. Three papers reported on Precambrian material by T.R. Fairchild and his associates, and four papers on various aspects of palynology. Ten papers reported on the gondwanide flora, including studies on Sphenophytes and a new glossopterid fertiliger by T.S. Millan and E. Dolianiti; a general paper on Permian index fossils was presented by Oscar Rösler. Dr Therezinha Melhem gave an address on 'Palynology in Brazil'. One paper by B. Bohlin discussed pseudolycopside in a flora from the Rocky Mountains in Canada. Further information may be obtained from Prof Oscar Rösler, Departamento de Paleontologia, IG-USP, Caixa Postal 20899, 01000 Sao Paulo, Brazil.

ARBEITSKREIS FÜR PALAEOBOTANIK UND PALYNOLOGIE (APP), SCHWANDORF March 1977.

The 7th annual meeting of the APP was held on 23-25 March 1977 in Schwandorf near the brown coal area of the Oberpfalz (Bavaria). Under the guidance of Prof W. Jung, Munich, about 25 Palaeobotanists and Palynologists from Austria, Denmark, the Netherlands, Czechoslovakia and West-Germany met for lectures and field work. The lectures given at the meeting were mainly concerned with Tertiary palaeobotany, especially with the brown coal of Schwandorf and other regions and the origin of the brown coal in general. Prof Jung and his staff (H. Thiele and Dr H.J. Gregor) reported on their splendid teamwork together with Czechoslovakian palaeobotanists (Dr. E. Knobloch and Dr Z. Kvacek) about the brown coal of Schwandorf. On the second day there was a field trip to the open cast mines of the area with a demonstration of a new method 'How to obtain the greatest deal of fossil fruits and seeds with the help of an artificial cataract'.

The next meeting will be organised by Dr H.W.J. van Amerom on 7-8 April 1978 in Heerlen (Netherlands) with a field trip to the coal tips of the area.

LABORATORY OF PALAEOBOTANY AND PALYNOLOGY, UTRECHT November 1977

On Friday 18th November 1977, the new palaeobotanical museum of the Laboratory of Palaeobotany and Palynology, State University of Utrecht, The Netherlands, was officially opened. Prof F.P. Jonker - after having welcomed the numerous guests and representatives of societies in the field of botany and geology (also from neighbouring Belgium and West Germany) - started his inaugural address with a historic review of the pursuit of palaeobotany and palynology in Utrecht. He then explained the aims of this new acquisition of the Laboratory: (1) to give an idea of the various scientific activities of the Laboratory, both the past and present research; (2) to give an idea to advanced students who are considering taking palaeobotany or palynology as one of their specializations; (3) to give an idea of the vegetation succession since the genesis of plant life on earth, as well as of the different taxa that arose, existed, and became extinct; (4) to help younger students to become acquainted with extinct taxa and to recognise and identify plant fossils; (5) to assist amateurs and non-professional collectors of plant fossils in identifying their finds and discoveries, and to build a bridge between these groups and professional palaeobotanists; (6) to exhibit and explain some palaeobotanical techniques as applied in the Laboratory.

Professor Jonker paid a special tribute to Dr J. van der Burgh who has been charged with the curatorship and who got through an enormous amount of work before the museum was ready for the inauguration ceremony. He further explained that the new museum is not regularly open to the general public due to lack of man-power, but that every interested visitor is welcome, with his fossils if he is in need of help or material for comparison. After the address the guests visited the museum and then gathered at a pleasant social meeting with some refreshments.

SECOND NORTH AMERICAN PALAEONTOLOGICAL CONVENTION, KANSAS

The symposium, Biostratigraphy of Fossil Plants: Successional and Paleoeological Analyses, held by the Paleobotanists at the North American Paleontological Convention II in Lawrence, Kansas was well received and is being prepared for publication as a special volume. It is hoped that this will be available in early summer, 1978.

GEOLOGICAL SOCIETY OF AMERICA, SEATTLE September 1977

One of the lectures delivered at this meeting was of particular significance to palaeobotanists. M.E. Brownlee, T.F. Anderson and T.L. Phillips, all at the University of Illinois gave the paper on 'Stable Isotope and Petrographic Evidence on the Origin of Coal Balls'. It is abstracted in the society's journal, volume 9, number 17, September 1977, page 912, and concludes: "The isotopic results suggest that mineralization occurred in situ throughout the history of peat accumulation with varying contributions from inorganic marine carbonate and carbonate derived from the oxidation of organic matter. The data are compatible with coal ball formation proceeding from the base of the sequence upward." The results seem to correlate with the 'Example of the origin of coal balls' by W.D. Evans and D.H. Amos, 1961, Proc. Geol. Ass. (Lond.), 72, 445 - 454.

PALAEOBOTANICAL SECTION OF THE B.S.A., EAST LANSING, MICHIGAN August 1977

There were over 60 contributed papers and a symposium, Plant Reproduction in the Fossil Record. Dr Walter Friederick of Aarhus Denmark was our guest at these meetings as the Herman Becker lecturer and presented a paper in the symposium. The symposium will be published in the Review of Paleobotany and Palynology. The minutes of the business meeting have been prepared by the section's secretary-treasurer Prof D. Dilcher. The nominating committee reported that the chairman for 1978 is to be S.E. Scheckler and the secretary-treasurer for 1978 - 1980 Charles N. Miller, Jr., Botany Department, University of Montana, Missoula, Montana 59801, U.S.A.

PALAEONTOLOGICAL ASSOCIATION, READING December 1977

The Association's annual Christmas meeting included a selection of one day field trips, three lectures on palaeobotany and eight demonstrations of fossil plant research. There were even jokes about fossil plants from the Association's President Professor W.G. Chaloner in his after dinner speech (and some sang songs afterwards). The abstract of the palaeobotanical lectures are given below:
CHALONER, W.G. and JACOBS, R. (Birkbeck College), Collapse in palaeobotany
Two processes contribute to produce a plant compression fossil, as it is seen in the laboratory. The first was slow - the partial decomposition, collapse and compression of the fossil within the matrix. Very little experimental work has been done on this process, as it affects plants. The second was rapid - the opening up of the fracture plane which exposed the fossil. The pathway of this fracture is governed by characteristics of the matrix, the fossil-matrix interface and the shape and orientation of this plant material. Understanding of compression fossils has sometimes been retarded by a tendency to regard them as 'pressed plants' rather than as three dimensional structures exposed on an irregular surface. Experiments using a simple mechanical model of the plant-matrix system are described, and their results used to elucidate fossils of Calamites, Sawdonia and Cyclostigma.

CRANE, P.R. (Reading), Angiosperm macrofossils from the Reading Beds

Previous work on angiosperm macrofossils from the Woolwich and Reading Beds were briefly reviewed and discussed in relation to our understanding of other British Lower Tertiary floras. New collections from the Reading Beds near Newbury, Berkshire, have extended our knowledge of this flora considerably, and preliminary systematic studies have established the presence of over 30 taxa. The plant bearing deposits are dominated by angiosperm remains, although fragments of conifer leafy shoot have been collected. The occurrence of leaves, fruits and seeds in the same deposit has permitted the associations of various organs, and attempts at 'reconstructing' the fossil plants. The 'reconstruction' of a species of *Cercidiphyllaceae* has clearly demonstrated the value of this approach in assessing the systematic affinities of fossil angiosperms.

SCOTT, A.C. (Dublin), Reconstruction of Upper Carboniferous plant communities

A number of facies associations have been identified in the Westphalian B of northern Britain, each containing a characteristic fossil plant assemblage. They are interpreted as floodplain (including swamp), lake and delta deposits. The composition of the fossil plant assemblages was controlled by sedimentary processes and by the composition of the original plant community (or communities) from which they came. Preliminary hypotheses concerning the plant community structure are made by considering the distribution and possible transport history of the plants. It is suggested that the floodplain supported a flora dominated by pteridosperms with some ferns, sphenopsids and lycopods; *Calamites* grew around lakes and on pointbars while the peat (coal) forming swamp was dominated by lycopods; levee banks of meandering rivers supported various pteridosperms. Evidence also supports the idea that at least some cordaites and conifers were upland plants.

OBITUARY - PROFESSOR C.A. ARNOLD

The death is announced of Emeritus Professor Chester A. Arnold on November 17, 1977. He was born in Leeton MO on June 25, 1901 and completed his BA and PhD at Cornell University. He studied under Dr Loren Petry and wrote his PhD on *Callixylon* in 1929. He joined the faculty at the University of Michigan in 1928 and remained there throughout his academic life. Professor Arnold was President of IOP from 1959 - 1964 and was visiting scientist at the Birbal Sahni Institute of Palaeobotany. He received the Botanical Society of America's Merit Award and the Paleobotanical Section's Distinguished Paleobotanist Award. He made significant contributions in his research, and his papers on Devonian and Pennsylvanian plants are particularly important. His textbook, *An Introduction to Paleobotany* (1947) was widely read and cited. His influence on Paleobotany in North America has been profound and his published work is well known throughout the world. His colleagues will miss him.

C.B. Beck, University of Michigan.

NEWS OF PALAEOBOTANISTS

ELSE MARIE FRIIS from the Geologisk Institut at Aarhus starts a three week study visit to the British Museum (Natural History) in the middle of January 1978. She has just finished working on the megaspores from the Fæstervolt flora (*Azolla* and *Salvinia*.)

BRUCE H. TIFFNEY has assumed the position of Assistant Professor and Associate Curator of the Paleobotanical Collections at Yale University. These collections are quite sizable, and include much of Wieland's original Cycadeoid material. He is continuing his research on the fruits and seeds of the Cretaceous and Tertiary of eastern North America, and would like to hear from prospective graduate students interested in working on fruits and seeds. His new address is: Department of Biology, Osborn Memorial Laboratory, Yale University, New Haven, Connecticut 06520, USA.

- GERHART LAUER is a senior micropalaeontologist with the Shell oil company and was recently interviewed for the London Evening Standard. The article ends with the 'generality about his work': "There have been three things efficient in the world," he said, "the Roman Army, the Catholic Church and the multi-national, multi-million capitalist enterprise - like Shell."
- WALTER FRIEDRICH of Aarhus was guest at the meeting of the Palaeobotanical Section of the B.S.A. as the Herman Becker lecturer. He also attended the palaeobotanical luncheon.
- H. ANDREWS, C. ARNOLD, H. BECKER & J.M. SCHOPF were presented with plaques, in recognition of their service to palaeobotany, at the palaeobotanical luncheon of the Palaeobotany Section of the BSA.
- DAVID F. BRAUER from the State University of New York was presented with the Best Student Paper Award by the Palaeobotany Section of the BSA. His paper was entitled 'Barinophyton citrulliforme Arnold from the Famennian of Pennsylvania.'
- PROF E.M. ZINDEREN BAKKER has been elected Vice-President of the South African Society for Quaternary Research. Currently he is engaged on a research project on the wind dispersal of sporomorphs over the Southern Ocean in connection with the explanation of fossil spectra. He is also preparing the Palaeoecology of Africa volume X for publication with A.A. Balkema, P.O. Box 1675, Rotterdam, Netherlands.
- DR J.A. COETZEE of the University of Orange Free State continues to investigate the palynology of Late Cainozoic deposits in the south western Cape as well as of the Namib region. He gave a paper at the Xth INQUA congress in Birmingham 1977 entitled 'Late Cainozoic Palaeoenvironments of Southern Africa' - it will be published in the proceedings of the symposium. At the Birmingham conference he organised a meeting of the African Committee for Palynologists (ACP) which will now be properly constituted, and affiliated to ICP. Dr Coetzee will represent ACP at the ICP council and will try to publish two newsletters a year.
- BILL SCHOPF will take part in an anticipated trip to the People's Republic of China with a group of American botanists. If you are interested in establishing better palaeobotanical exchanges with workers in China please contact Prof J.W. Schopf, Department of Earth Sciences, University of California, Los Angeles, California 90024, USA.
- HARLAND BANKS was elected Liberty Hyde Bailey Professor by the Cornell University Board of Trustees. This professorship was established for recognition of distinguished work in the science.
- JIM DOYLE AND LEO HICKEY shared the Henry Allen Gleason Award of the New York Botanical Gardens for their paper 'ollen and leaves from the mid-Cretaceous Potomac group and their bearing on early Angiosperm evolution', published in 'Origin and early evolution of Angiosperms' Ed. C. Beck.

PRECAMBRIAN BIOSTRATIGRAPHY

The I.U.G.S. Subcommittee of Precambrian Stratigraphy has a working group on Precambrian Biostratigraphy which published a General Circular from time to time. Number 4 in this series was published during November 1977, and details can be obtained from the secretary of the working group Mr C.J. Peate, Department of Geology, Royal School of Mines, Prince Consort Road, London SW7 2BP, England. The circular attracts a great deal of very stimulating correspondence which forms the greater part of its content; the group is very much involved with the search for a unified system of classification to deal with organic microstructures of uncertain origin.

QUATERNARY PLANT REMAINS FROM SCANDANAVIA

Dr Hans Tralau's project 'Computer system on palaeogeographical trans- and regression patterns including vegetational history of vascular plants during the Late Mesozoic and the Cainozoic', which involves an attempt to establish a data bank for Quaternary plant remains from Scandinavia (cf. the article by B. Lundblad on 'Dr Hans Tralau's scientific projects' in IOP Newsletter 4, August 1977) is being continued at the Department of Quaternary Geology of the University of Uppsala under the auspices of the Swedish Museum of Natural History, Stockholm. The computer specialist attached to the project, Mr U. Andersson, left his post at the Riksmuseum on August 15, 1977 and has been replaced by Dr Ingemar Pahlsson, University of Uppsala, Department of Quaternary Geology, Box 555, S-751 22 Uppsala. Mr Andersson is still connected with the project as an advisor.

Britta Lundblad, Swedish Museum of Natural History.

NEWS OF INSTITUTIONS

ARBEITSKREIS FÜR PALAEBOTANIK UND PALYNOLOGIE (APP)

This is an informal organisation without dues, and the 150 members are not only from West Germany but also from Austria, Switzerland, the Netherlands and Scandinavian countries. The annual report of the APP usually contains an annual bibliography, abstracts of the papers presented at meetings and occasionally a list of members and other short publications. In addition an occasional newsletter is distributed free of charge to the membership which gives details of the activities of APP, ICP and IOP.

INTERNATIONAL ASSOCIATION OF ANGIOSPERM PALAEOBOTANY (IAAP)

The International Association of Angiosperm Paleobotany (IAAP) will mail out its first newsletter early in 1978. We hope to establish an address list of those interested in this new organization and also collect information for a Bibliography to be published and distributed to members. Please contact Dr Gary Dolph, Department of Biology, Indiana University, Kokomo, Indiana 46901, USA if you would like to be included on the mailing list.

AMERICAN ASSOCIATION OF STRATIGRAPHIC PALYNOLOGY (AASP)

The American Association of Stratigraphic Palynology held its Tenth Annual Meeting in October 152 people attended and 19 of these were foreign guests. Professor Knut Faegri, University of Bergen, Bergen, Norway was elected to Honorary Membership in AASP.

The new journal Palynology is now in full operation. It is open for contributions in palynology for those interested in contributing. Publication in this journal is not restricted to members of AASP. Contact Dr Vaughn M. Bryant, Jr., Texas A & M University, College Station, TX 77843 USA for instructions to contributors of Palynology.

The next AASP meeting will be held at the Del Webb Town House, Phoenix, Arizona Oct. 24-28, 1978. Contact Prof James Canright, Department of Botany, Arizona State University, Tempe, AZ 85281 for more information about these meetings. Foreign colleagues are invited to attend.

BIBLIOGRAPHIES

I.O.P. Newsletter 4 gave details of how to obtain bibliographies of recent palaeobotanical literature for the following regions: France, Belgium and Switzerland; United States of America; West Germany, Austria, The Netherlands and Scandinavia; United Kingdom. Since August 1977 one other important bibliography has been published:

PALAEOBOTANICAL AND PALYNOLOGICAL BIBLIOGRAPHY OF LATIN AMERICA 1976

This contains references to General Palaeobotany and Palynology as well as to work listed in a stratigraphic order. Some papers published between 1970 and 1975 are also included. There are also details of work in actiopalinology which are listed systematically.

The bibliography is published in Boletín de la Asociación Latinoamericana de Palaeobotánica y Palinología, 4, 25 - 36, 1977. The secretary of that association is Dr R. Herbst, Facultad de Ciencias Exactas y Naturales y Agrimensura, U.N.N.E., 9 de Julio 1449, Corrientes, Argentina.

NOMENCLATURE

Don Quixote and the Luddites (Traverse, 1975) are now joined by a Phoenix in the list of romantic metaphors used in discussions of the present problems of palaeobotanical nomenclature. The International Code of Botanical Nomenclature arising from the 1975 Leningrad International Botanical Congress is in press and should be available during 1978. The relevant report from the secretary of the I.A.P.T. Committee for Fossil Plants was published in I.O.P. Newsletter 1, 1976, and gives details of the two most significant changes that were adopted.

Proposals for consideration by the I.A.P.T. Committee for Fossil Plants and the Sydney Congress 1981 should be submitted for publication in *Taxon* as soon as possible. This Newsletter can serve as a medium for informal debate on matters of palaeobotanical nomenclature, and correspondence is invited to influence the proposals to be considered at Sydney. To stimulate such a discussion, a bibliography of some recent publications relevant to the current state of palaeobotanical nomenclature is offered below, together with the first letters on this topic that have been received by the secretary of IOP.

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CORRESPONDENCE

BRING BACK THE ORGAN GENUS? from W.G. Chaloner, London, January 1978.

At the International Botanical Congress in Leningrad in 1975, the Nomenclature Session approved an important and fundamental change in the terminology of fossil plant genera in the Code (see Traverse, 1975a; Petersen, 1976). In effect, this change abolished the old concept of an "organ-genus", so that we now have only a single category of generic designation of particular application to fossil plants - the "form-genus".

To appreciate the significance of this change, we need to look back at the situation presented by the Seattle Code (Stafleu et al, 1972). The relevant article read: " - since the names of species and consequently of many higher taxa of fossil plants are usually based on fragmentary specimens, and since the connexion between these specimens can only rarely be proved, organ-genera and form-genera are distinguished as taxa within which species may be recognised and given names according to this Code. An organ-genus is a genus assignable to a family. A form-genus is a genus unassignable to a family, but it may be referable to a taxon of higher rank (see Art. 59). Form-genera are artificial in varying degree."

It can be seen that the Code was trying to accomodate two important problems peculiar to the handling of fossil plant taxa:

- 1) Fossil plants commonly occur as detached parts (eg spores and leaves) which may never be discovered in connexion with other parts of the same plant.
- 2) Such parts, although requiring binomials as a means of reference, may not show sufficient diagnostic features to make them assignable to a family (although they may be assignable to a higher grouping eg Tracheophyta).

The Seattle Code in effect acknowledged that these two factors presented us with a wide range of situations relating to fossil plant taxa. At one extreme there were form-genera such as Pecopteris, containing species, some of which were evidently ferns, while others were pteridosperms. (Hence the reminder that form-genera are "artificial in varying degree".) At the other extreme there were organ-genera such as Lagenostoma and Lepidocarpon (based on seeds) and even some genera based on stems (such as Medullosa or Psaronius) each of which was thought to show a distinctive set of characters, representing in each case a "natural" group i.e. a cluster of species, probably closely related in a phyletic sense. As has been remarked on many occasions, the labels "organ-genus" and "form-genus" are rather

unfortunate, since both of these kinds of uniquely fossil generic categories were based on detached organs.

In this way the Seattle Code and its immediate predecessors had sought to designate two extreme situations - the form-genus as an artificial but expedient taxon for species of superficially similar appearance, and the organ-genus as a group of species perhaps approximating to a genus of living plants, but based on detached plant parts of the same category. The boundary between them was based on the level of supra-generic assignment considered possible for a given genus; if it could be assigned to a family, then it was an organ-genus; if not, it was a form-genus. Of course, most palaeobotanists accepted that this boundary line was an arbitrary one. The end members of the range of generic concepts were clear-cut, but there was uncertain ground in the middle. Inevitably some genera would be seen by one author as a form-genus, while others would view the same taxon as an organ-genus (see for example the dispute over Laevigatisporites on these lines, cited in Jansonius, 1974). But both form-genera and organ-genera were based on very incomplete parts of plants, and in this were much more limited as taxonomic concepts than a genus of living plants. Organ-genera such as Psaronius (a genus based on a stem) or Asterotheca (based on sporangia) could both be assigned to the Marattiaceae; but each of those genera is of only quite narrow application, relating to one type of organ.

Meyen (1975) set out a formal proposal to amend the Code, seeking to clarify the unsatisfactory status of organ- and form-genera, emphasising that two taxa could be form-genera with respect to one another, but might be organ-genera when seen in relation to certain other genera. This proposal had much to recommend it, since it acknowledged the wide range in status of different fossil plant genera, while drawing attention to the very arbitrary nature of the form-genus/organ-genus distinction. Unfortunately his proposal was rejected by the Nomenclature Section of the Leningrad Congress.

The latest emendation of Art. 3 Note 1 now leaves us with an absurd dilemma. A genus such as Lepidocarpon, for example, has been widely held to represent a "natural group" which can properly be made the basis (and hence the type) of a family, the Lepidocarpaceae. Clearly, then, it is not a form-genus as defined in the Seattle Code; yet it is based solely on detached sporophylls or megasporangiate cones. We still do not know the plant which bore it. To claim that Lepidocarpon is simply "a genus", in the same sense as Quercus, strains the credulity of even the most enthusiastic palaeobotanist. But the dilemma goes deeper than this. The Leningrad revision of Note 1 now states that "a form-genus may be unassignable to a family but may be referable to a taxon of higher rank" (Traverse, 1975). This contrasts with the Seattle version, "a form-genus is a genus unassignable to a family". The corollary of the Leningrad revision is that a form genus obviously may be assignable to a family. How are we now to distinguish between those form-genera (which by implication exist) which may be assigned to a family, and other straight forward "genera" based on detached fossil plant parts?

Despite recent proposals to reject or bypass the International Code of Botanical Nomenclature (e.g. Hughes, 1976 and earlier papers there cited) I believe that the Code represents the best instrument available to regularise and give international stability to our nomenclature of fossil plants. If it is to survive, and to continue to be followed, it must be seen to relate to the realities of palaeobotanical nomenclatural problems. I do not believe that the Leningrad emendation to Note 1 contributes to this end. We have three years between now and the next Botanical Congress in which to explore the implications of the revised form-genus concept. I urge all palaeobotanists to look critically at this and other aspects of the Code in the context of their own work. If the Code still does not fulfill our needs, let's not be inhibited in submitting further revisions - or even in considering a return to the status quo!

A RESTATEMENT OF TAXON 24, 251 - 254 from S.V. Meyen, Moscow, December 1977.

I feel that the genus problem is rising as Phoenix from the ash of the Leningrad Congress. Once again I would like to draw palaeobotanists' attention to the suggestion that I previously made in a paper which was published as a castrated version in Taxon 24, 1975, 251 - 254.

I presume that in considering the form-genus (or organ-genus) concept we must pay attention to the difference between extant and fossil genera instead of the difference between various fossil genera. I believe that all fossil genera are actually or potentially form-genera, and that the notorious assignability to a family is only of minor significance in this affair.

When dealing with living plants we have no right to attribute axes and spores to different genera. When I find a seedling in a forest and cannot attribute it to a certain species or genus I will not establish a new taxon. In palaeobotany I can do it (e.g. the genus Eddya was tentatively envisaged by C.B. Beck as a seedling of an Archaeopteris-like plant). When we are studying recent pollen rain we attribute pollen grains to Chenopodiaceae, Betulaceae, etc. without establishing taxa independent from already known ones. When dealing with living plants we follow the principle IV of ICBN: "Each taxonomic group with a particular circumscription, position, and rank can bear only one correct name, the earliest that is in accordance with the Rules, except in specified cases". Fossil plants represent such "specified cases" Dealing with fossil plants we can (and often even must) attribute various parts of a single plant, when they are found dispersed, to several taxa, i.e. place them under various names.

It is sufficient to acknowledge that miospores are classified separately from other parts of the fossil plant body and this will bring all the fossil plant taxonomy under the aforesaid "specified cases". Even with well studied fossil plants, like Rhynie or Psilophyton dawsonii, we will not distribute these generic name to miospores from embedding rocks. This means that we give various generic names to parts originally belonging to individuals of a single species. Such treatment of the genus concept in palaeobotany is fundamentally different from that in neobotany and this difference (not "the family criterion") leads to the necessity to introduce a form-genus concept (as in case of Fungi with pleomorphic life cycles). The reference to a family is necessary only as an excuse that we cannot follow the first paragraph of the Art. 3 in all cases "each species belongs to a genus, each genus to a family (certain groups of fossil plants excepted), etc."

Unfortunately only the latter difference between fossil and living plants has been properly explained in the Code, the former and more fundamental difference having been neglected. In my version of the Note 1 to the Art. 3 (see Taxon 24, 1975: 253) I underlined both differences but this suggestion has not been discussed in Leningrad. I agree that the current text of the Art. 3 needs clarification and better explanation of two fundamental differences between taxonomy of living and fossil plants. One difference (the possibility to attribute various dispersed parts even of a single plant to different genera) leads to the form-genus concept, and another difference (the impossibility to attribute every fossil genus to all possible suprageneric taxa) - to "the family criterion".

There is no necessity to revive organ-genus as a separate category, but if we restore it in the Code, the only way for me is that suggested in the aforesaid paper in Taxon.

BOOK REVIEWS

MARIE STOPES; A BIOGRAPHY. Ruth Hall, 1977. Andre Deutsch, London. 351 pp., £5.95.

Marie Stopes (1880-1958) was the first woman to do many things. She did good work in palaeobotany; pioneered coal petrography and won equality for women in their

sexual life. She fought a long battle with the Catholic church, and others, and won. Moderation and womanly sweetness are hardly to be expected from such a heroine.

This interesting and convincing book tells the story (documented voluminously by Marie) and examines the driving forces. Doubtless her intelligence, prodigious capacity for work and good looks were innate, but life imposed her need to excel repeatedly, her romanticism, elitism, intolerance, labour to help the poor, obsessive modesty, passionate devotion to a man or to a cause, snobbery in unaccepted directions made her a damned uncomfortable woman. Her style in science was austere, but romantic and treacly about people. Much of this awkwardness surely came from her mother who might have found happiness as a spinster working for women's right to the vote but as a wife and mother brought misery to herself and kin.

Marie attended and was humiliated in bad schools and was slow to catch up when finally well taught and then excelled in chemistry and won a scholarship. She chose University College London where the chemists shunned her as a woman but Oliver accepted her as the only woman in Botany. She excelled, won first class honours and honours too in Geology and this in a year less than the proper time. She was spurred by the impending death and impoverishment of her beloved father. She spent her spare year describing coalball plants and went to Munich armed with two papers as their first woman research student. She worked with the great v. Goebel on Cycad ovules and won a doctorate with the highest honours; this was to be held against her at her trial, "Doctor of German Philosophy" (she was also D.Sc. Manchester). Marie must have thrilled her host University, then far more man-dominated than anything in Britain. Here she formed her fiercest passionate-platonic attachment, to Prof Fujii of Japan. It lasted five years and took her to Japan. The unnatural link caused distress to both and in the end he broke it, to Marie's misery. She went to Japan to collect and study plant-bearing Middle Cretaceous concretions in the quest for the earliest Angiosperm and had success in getting sections of something like a lily fruit. Back in England she continued to work on Cretaceous plants and her British Museum catalogue of the Cretaceous flora describes the earliest Angiosperm woods (she was always at home in plant anatomy) and is noted for the scholarship of its bibliography.

She was the first woman appointed lecturer (but with trepidation) at Manchester and worked on coalball plants. She returned to an appointment at London. She was hard up because she supported her improvident mother and ailing sister and after a number of romantic attachments made her disastrous first marriage. She and her husband lived together bitterly and it was three years before Marie realised that she was still a virgin. She got no advice from her mother or woman friends, nor even from her doctor, but from reading medical and scientific books. Impotence is an affliction known through the ages and to all but expensively educated ladies, and I do not think England in 1915 was so dotty that a doctor would be too delicate to help a woman about her troubles. She was an anti-medical crank and may have been misunderstood.

The experience was more than ordinarily searing to Marie because of her obsessive ideas. It divided her life. She did continue for a while, to raise money I think, working on coal in an applied way and her paper on the four visible constituents of banded coal came to be used internationally as a basis. I suppose it had more good sense than anything written before.

While awaiting the annulment of her marriage she was writing her most famous book, Married Love. Two thirds of Ruth Hall's book deals with this and its consequences. It is exciting. But you will find no full bibliography or appraisal of her scientific work; to my regret for I respect it.

All I know of Marie Stopes' life is what I have read. I am convinced that the book is true in substance and in fact, but I am not so sure it is always fair in comment. Sometimes it is neither friendly nor kind.

GENERA FILE OF FOSSIL SPORES AND POLLEN. J. Jansonius and L.V. Hills, 1976. Special Publication Dpt. Geology, University of Calgary, Canada. 3287 cards, Canadian \$80.00.

This file consists of 3287, 8" x 5", alphabetically numbered cards of genera of fossil pollen, microspores, megaspores, and fungal spores. Each card includes the generic name with its validating author and date, the bibliographic reference, the type species with its reference, a generic diagnosis, translated into English where necessary, and often with comparative remarks by the original authors or by Jansonius or Hills, and the description, age and geographic occurrence of the type species. A line drawing of the type species of valid genera and, where applicable, emendations and discussion of nomenclatural problems are also given. The authors note that they have ignored some emendations considered immaterial. No explanation of these exclusions is given and for purposes of entirety, a complete listing, annotated if necessary and with a qualifying comment, would be an improvement. Apart from the age of type species, the ages of genera are omitted. Some indication of the known age range of each genus would be useful.

The file is issued with a set of introductory remarks describing the content of the card catalogue, plus a brief version of the I.C.B.N. rules of nomenclature as applicable to palynology.

Periodic updates including newly proposed genera, and new emendations and discussions are offered. The first supplement of 144 cards was distributed in mid-1977.

The authors advise the use of two sets, one to remain in alphabetical order as a basic reference set, and the other to be rearranged in suprageneric groupings. This recommendation is certainly worth following.

The completion of such a formidable task of compilation is impressive in itself. The result is an excellent reference file invaluable to anyone engaged in taxonomic research. Original diagnoses and type species descriptions, many of which would otherwise be extremely difficult, if not impossible to obtain, are now instantly available to the English reader. Inclusion of subsequent emendations and discussions, although sometimes incomplete, provides an excellent guide on nomenclatural problems and also reduces time-consuming literature surveys. This file should minimize or prevent proposal of illegitimate synonyms or homonyms.

Rosemary A. Kyle, Institute of Polar Studies, The Ohio State University, Columbus, USA.

DIE FLOREN DES ERDALTERTUMS. W. and R. Remy, 1977. Verlag Gluckauf GMBH, Essen. 468 pp., 68 DM.

Here is a useful book for all palaeobotanists and for those geologists wishing to interpret and identify palaeozoic plants. The scope of the book is broad and the authors are to be congratulated on their efforts. It does succeed as "An Introduction to the Morphology, Anatomy, Geobotany and Biostratigraphy of the Plants of the Palaeophytic" which it claims through its subtitle. I recommend its purchase before saying more.

The authors first discuss the changing pattern of the world's flores from the Silurian to the Permian. They do not, however, merely list species, but attempt to subdivide them into the major biotypes of hydrophiles, hygrophiles and mesophiles. Seeing species listed ecologically stimulates thought, which in its turn should stimulate further work and discussion. One can not have too much of either. Then comes the larger part of the book dealing with fossil plant systematics. My first thought that this was to be merely an enlarged version of their early 'Planzenfossilien' was quickly proved incorrect. It includes descriptions and illustrations of all the major genera and species. The bias is heavily towards

macrofossil compressions with only a few illustrations of petrifications and spores. I suppose that this is understandable, considering that the book is aimed at geologists. I would still think that some more information on in situ spores would have been welcome, even as a public relations exercise between macro and micro-palaeobotanical workers. The illustrations are very good, obviously having been carefully chosen for their clarity. Perhaps a few more line drawings would have been a useful addition.

The final section of the book deals with the phylogeny of plant organs of palaeozoic vascular plants. It is an interesting botanical slant to an otherwise geologically orientated book. Perhaps this is the public relations exercise. A useful glossary completes the book.

If I attempt to criticise, I can say that I find it a little too much as though written through myopic German eyes, but again I guess it was written mainly for a central European market. There are a few places where I would disagree with the systematics, but it generally falls within traditional lines. This book deserves a place on your bookshelf. It will be used.

B.A. Thomas, Goldsmith's College, London, England.

DIE HOLZER MITTELEUROPAS EIN MIKROPHOTOGRAPHISCHER LEHRATLAS. D. Grosser, 1977. Springer-Verlag, Berlin. 208 pp., \$43.20

This volume, beautifully produced on heavy art paper, is a worthy successor to the long out-of-print atlas of middle European woods by Schmidt. It furnishes detailed descriptions of 8 genera of softwoods and 51 of hardwoods. As so many of the latter are included the book covers much more than the common forest trees; genera such as Catalpa, Gleditsia, Laburnum and Ailanthus are to be found. This feature and the detailed chapters (about 60 pages) on wood anatomy add considerably to the apparently limited scope that is suggested by the title. The reader is led through a fully illustrated account of the characteristic features of wood and the use of these in identification. In an end-pocket there are three, large, folded tables of the diagnostic characters of the woods described.

Most of the remainder of the book (130 pages) is devoted to the detailed descriptions; each genus occupying two facing pages. On the left is the verbal account with, opposite, excellent photomicrographs of transverse, radial-longitudinal and tangential-longitudinal sections. For 6 genera a larger area of photographs is provided by fold-out pages. The bibliography has about 170 references among which are included many concerning woods on a world-wide basis. This is a book which fully lives up to its subtitle as a 'Lehratlas'; an undergraduate could use it as a textbook of wood anatomy whilst the research worker would find it invaluable for its wealth of detail.

G.T. Creber, Birkbeck College, London, England.

A REVIEW OF GONDWANA PERMIAN PALYNOLOGY WITH PARTICULAR REFERENCE TO THE NORTHERN KAROO BASIN, SOUTH AFRICA. (The Biostratigraphy of the Permian and Triassic, Part 3) J.M. Anderson, 1977. Mem. Bot. Surv. South Africa, No. 41. Dpt. of Agricultural Technical Services, Pretoria. 67 pp., 188 pl. R.6.50.

Despite its status as the third part of a serial publication, this work is available in a soft cloth cover as a single volume, and it certainly constitutes an important palynological work in its own right. Anderson sets out to review the literature on the palynology of the Permian of Gondwanaland, relating earlier work to his own studies in the Karoo. The scope of this undertaking can be seen in the fact that some 220 papers have been published on Gondwanan palynology since 1955, recording

283 genera and 749 species. Anderson's work consists of a short text of some 67 pages, followed by a comprehensive series of systematic, stratigraphic distribution charts, together with 188 plates illustrating 5,000 specimens. Out of this prolific brew of Gondwanan palynology Anderson distils only 33 genera, within which he recognises 133 species, from 36 sections (mainly bore-holes). These species form the basis of 21 spore zones through the Karoo sequence, some characterised by a small number of species restricted to the zone, while other zones are defined on an "overlapping range" basis.

What prevents this work from being simply another paper on Permian spores is the extent and thoroughness of the collated review of Gondwana Permian palynological literature. For every species, a map of the reassembled Gondwanan continents shows the localities where it has been recognised, while a generalised section shows its stratigraphic range in any of 23 Gondwana basins of deposition. The references are also indexed alphabetically by the author, chronologically and on a regional basis, with a brief coded summary of the scope of each paper.

A further feature which will make Anderson's work important to readers outside South Africa is his attempt to reconcile a "Hughesian" taxonomic treatment (with its rejection of binomial nomenclature, priority of names and typification of taxa) with a more orthodox approach. Fortunately the compromise he achieves lies well in the latter direction, for he sustains previously published binomials, and acknowledges the status of their holotypes. But he also makes a valuable gesture towards the Hughesian approach in illustrating a large number of specimens from each of his species-populations, indicating clearly the number and provenance of the specimens on which each population concept is based. He then assesses the similarity and overlap between his measured populations, basing each of his species either on one such population, or a grouping of several overlapping ones. On the whole, Anderson is a "lumper"; and although he does not place earlier taxa in formal synonymy with those he recognises, he records for each species other "closely related species", indicating with a graded series of symbols their degree of similarity to the species in question.

One of the more controversial aspects of this work is the author's determination to assign the genera based on spores to higher botanical categories. As a result, all bisaccate striate pollen are included in the "Glossopteridophyta", in spite of the fact (acknowledged by the author) that certain of these pollen genera are abundant in the European Permian where, of course, Glossopterid macro-fossils are unknown. The strong similarity of Gondwanan spore genera to their northern counterparts, which belies the contrast in the macro-fossil floras, remains a challenging enigma of Permian palaeobotany.

Inevitably in a project of this scope one can find details to criticise; but the totality of the work is undoubtedly a major contribution to Gondwanan palynology. The extent to which Anderson's zonation will allow correlation with other parts of Gondwanaland, and his rather broad species concept be sustained by other workers, can only be judged in the light of subsequent work. But the sheer body of information that has been brought together, and the very helpful way in which the distribution charts and the population photos have been set out, make this work a model for any palynological study.

W.G. Chaloner, Birkbeck College, London, England.

OTHER BOOKS

(It is hoped that this section of the newsletter will appear from time to time, to include details of books published with only partial relevance to palaeobotany. Contributions will be very welcome for books published during 1977 and 1978.)

PALAEOECOLOGY OF AFRICA 1972-4. VOLUME 9. Ed.: E.M. Zinderen Bakker, 1976. Balkema, Cape Town. 223pp. about \$23.00.

A. Hamilton reviews patterns of forest distribution within Upper Pleistocene environments, E.M. Zinderen Bakker summarises the modern climatic system of southern Africa and Bonnefille & Riollet review palynological research of the East African Quaternary.

CONCEPTS AND METHODS OF BIOSTRATIGRAPHY. Ed.: E.G. Kauffman & J.E. Hazel, 1977. Dowden, Hutchinson & Ross Inc., Pennsylvania. 658pp. \$44.45.

The book contains review articles on the theory of biostratigraphical methodology as well as specialised chapters on studies in mobile and benthic organisms; many have been published in only a slightly different form elsewhere. 'Spores and pollen: the Potomac group (Cretaceous) angiosperm sequence' by J.A. Doyle is of particular significance to palaeobotanists.

PATTERNS OF EVOLUTION. Ed.: A. Hallam, 1977. Elsevier, Amsterdam. 591pp. \$69.50.

Three of the 17 chapters are concerned with general evolutionary principles and the remainder give specialised details for particular groups of organisms. 'Patterns of evolution in early angiosperms' by J.A. Doyle is the main article of interest to palaeobotanists.

CALCARIOUS ALGAE. J.L. Wray, 1977. Elsevier, Amsterdam. 185pp. \$28.75.

An introduction to the identification, stratigraphic significance and palaeoecology of of modern and fossil forms.

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