

IOP NEWSLETTER 9

INTERNATIONAL ORGANIZATION OF PALAEOBOTANY

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES

SECTION FOR PALAEOBOTANY

President: Prof. T. DELEVORYAS, USA

Vice President: Prof. E. SOUREAU, FRANCE

Dr. S. ARCHANGELSKY, ARGENTINA

Dr. S.V. MEYER, 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 (OCTOBER) NEWSLETTER NUMBER 10. The views expressed in the newsletter are those of its correspondents and do not necessarily reflect the policy of IOP.

USE THE ATTACHED PINK APPENDIX SHEET TO REGISTER YOUR PAYMENT OF 1979 DUES. THE WHITE APPENDIX SHEET IS FOR REGISTRATION AT THE 1980 READING IOP CONFERENCE.

IOP NEWS

FIRST INTERNATIONAL PALAEOBOTANICAL CONFERENCE, ENGLAND 1980
IOP is sponsoring its first international conference next year, for what is hoped to become a regular event between the IOP sessions at each International Botanical Congress. This time, advantage is being taken of the assembly of palaeobotanists at the Cambridge ICP International Palynological Conference, so the IOP meeting will immediately follow that conference. The palaeobotanical meeting will be hosted by the Linnean Society, the national body representing the interests of British palaeobotanists. The programme will include field excursions and lecture sessions in much the same style as that initiated by the West German Arbeitskreis joint meeting (Erstes Treffen Europaischer Palaobotaniker) held in Bonn and Wuppertal in April 1976.

The preliminary programme is outlined below:

Monday 7 July travel by coach from London or Cambridge to Yorkshire evening field excursion (Jurassic)
 Tuesday 8 July field excursion in Yorkshire (Jurassic)
 Wednesday 9 July travel by coach through Carboniferous localities in Yorkshire to Reading
 Thursday 10 July lecture sessions at Reading university
 Friday 11 July lecture sessions at Reading university
 Saturday 12 July field excursion to the Carboniferous or Tertiary conference dinner
 Sunday 13 July disperse

Short communications dealing with all aspects of palaeobotany are invited and some poster sessions are envisaged. Formal invitations for intended participants can be arranged on request.

The estimated cost of £72 will include a registration fee of £12, food and accommodation and all field trip expenses. The £12 registration fee is not returnable and is required with the return of the white registration form at the end of this newsletter.

Full details of the programme will be forwarded in November to all those who return the registration form. Numbers may have to be limited and places will be reserved in order of registration. Payment of the full registration fee will be required by 30 April 1980. Please help the organisers by returning the registration form before 31 October 1979. The organising committee consists of W.G. Chaloner (chairman), P.R. Crane (secretary), C. Hill (treasurer) and M.C. Boulter.

IOP BUSINESS MEETING, PARIS, TENNESSEE, USA, April 1979

The new IOP President Professor Ted Dalevoryas had an informal meeting with the secretary Mike Boulter at the Paris Plaza Hotel last month. The North American regional representative Dave Dilcher was also present. The meeting was funded by a travel grant of £200 from The Royal Society, and all other costs were borne by those present. Details of the discussions have been sent to all Executive Committee members and will be detailed in the next newsletter. The topics covered included: 1, the relationship of IOP to other international bodies, 2, the definition of membership, 3, the production of bibliographies, and 4, increasing the benefits of membership.

IOP NEWSLETTER FORMAT

No adverse criticism has been received of the new reduced size version of the newsletter which is now being sent to members outside Europe. On the contrary, a number of members have written to approve the change. Certainly our costs of production and distribution are almost halved.

NEWSLETTER LANGUAGE

English has been used as the sole language for the newsletter since Hans Tralau initiated the new system of communication between IOP members in 1976. The new secretary has followed this tradition because all items submitted (with one exception) have been written in English. Some German speaking members have recently commented on this bias and have asked if other languages are acceptable. The monolingual secretary will try to cope with any language submitted, though clearly the more people that can understand its content the better. The newsletter continues to be translated into Chinese, by the way.

PAYMENT OF DUES

The Executive Committee is being asked to approve an increase of the dues paid by members in countries with easy currency exchange facilities with London; from 1980 membership will cost US\$6. This is the first

and the number of fossil groups that might be candidates for the field is fairly large. The philosophy behind selecting just the two groups mentioned goes unmentioned. The topic is a large and interesting one and I miss a discussion of the problem solving potential of the various groups and of the problems of their identification etc. Also, I think students of micropalaeontology should be aware of the organic walled fragments: the dispersed organic matter, kerogen, phytoclasts, palynodebris or whatever. The study of this material provides information on sedimentary environments and the geothermal history of the sediments. It has added a new aspect to palynology in the last few years, particularly as applied in the petroleum industry.

Turning now to the plant microfossil groups, the chapter authors are: B.O. Haq, Calcareous nannoplankton, 30 pages; and Siliicoflagellates and ebridians, 16 pages; J.L. Wray, Calcareous algae, 18 pages; L.H. Burckle, Marine diatoms, 22 pages; G.L. Williams, Dinoflagellates, acritarchs and tasmantids, 34 pages; L. Heusser, Spores and pollen in the marine realm, 14 pages. All the chapters follow identical outlines, and they are generously and constructively illustrated. Reviewing them is easy since they are all good. I could discover few errors, mostly insignificant. For instance, Haq's repeated use of haptonema to mean the flagellar apparatus of coccolithophores - the same error is in the Glossary - it's annoying, but hardly very serious. Williams presents a far too simplified version of the life cycle of dinoflagellates; not everyone would accept his version of the function of the resistant resting cyst, or "dinocyst", in relation to the life cycle. Dinocysts may in fact be hyphozogotes. The fact that only a small fraction of the dinoflagellate species produce resting cysts (around one fifth, judging from studies of Recent dinoflagellates) is not brought out, although it poses significant restrictions on interpretations in terms of dinoflagellate evolution, compared to other groups of fossil plankton whose vegetative stages are preserved. The diagram of figure 35 showing variations in the number of dinocyst species in the Mesozoic-Cenozoic may show little more than the uneven stratigraphic distribution of publications on dinocysts. The evolution cycle model presented for the dinoflagellates is certainly attractive for its simplicity, but I find its foundation suspect.

The spore and pollen chapter deals more than the others with problems of transport mechanisms and deposition, and much less with biology and morphology. This is a sound solution, since there are other texts on these aspects of palynology. I think it is a pity that the author missed the opportunity to include some of the essential results from Müller's beautiful and now classical work on the Orinoco delta, which in my view contains material of great pedagogic potential; the work is referred to only in the Introduction to the chapter. The reference to the "colorimetric evolution" of sporopollenin on page 335 is misleading. It is temperature or overburden rather than time which is the controlling factor. This important aspect of palynology and its application had in my view deserved a little more attention; this also applies to the subject of reworked palynomorphs and their potential in geological reconstruction. My few critical comments should not be permitted to overshadow the main conclusion: that it is a good and useful book. Competitors will have a hard task to do it better, and I doubt that it can be done much cheaper. S.B. MANUM, Oslo.

quantitative stand of "micropalaeobotany" in relation to marine micropalaeontology, as mirrored by this book. Of the fourteen chapters dealing with individual microfossil groups, six are devoted to groups of plant origin. By number of pages, the proportion is similar: the "plant" chapters occupy a little under 40%. This figure probably gives a reasonable indication of the relative strength of plant palaeoscience in micropalaeontology today. The rise to this position is a fairly recent development, having taken place mainly over the last 10 to 15 years.

The book's emphasis is on the individual microfossil groups, while some more general aspects of micropalaeontology have in my view received too little attention. The objective of the editors, as stated in their preface, has been to "provide a source for basic information on each group, for comprehension of the type of reasoning applied to the study of microfossils and their use in (paleo)oceanography, and for locating essential background material and references". In order to achieve this individual chapter contributors were asked to emphasise the "problem solving" potential of each fossil group, and to underplay such aspects as taxonomy and details of preparation techniques. In other words, less descriptive, more interpretive. This is certainly an ambitious programme and editors and contributors should be congratulated on the results of their efforts to live up to it. In spite of the hotchpotch nature of the subject, and the high number of contributors (15), the text is remarkably homogeneous and well balanced.

I find the underplaying of taxonomy a good idea: students tend to find it boring at the introductory level, and it is something that is best learnt by experience with the fossils. On the other hand, the underplaying of preparation techniques has gone too far: with one or two exceptions the chapters contain hardly anything useful on the subject. Students should learn that what we are doing to the fossils in the course of a few hours in the laboratory, may have severe effects on them: this may be more important than the entire sequence of processes acting between the living organism and the fossil state. Any interpretation from fossil assemblages has to take this into consideration. I think therefore that a chapter on preparation techniques would have been appropriate. An account of the problems encountered in the work with well cuttings would also have been useful.

In the introductory chapter (17 pages by W.A. Berggren) an array of complex topics is presented, from basic concepts in biostratigraphy, through biology and evolution to plate tectonics and palaeoceanography. Of course, to deal with all this in so little space must be a thankless task. The chapter is so condensed that it does little more than to introduce key concepts and problems and to offer leads to further reading.

One subject of a more general nature has also been given too little attention: the story of dissolution, deposition and diagenesis of calcareous and siliceous fossils. The understanding, or lack of understanding, of the problems here involved is crucial to interpretation based on microfossil assemblages. I think a separate chapter should have been devoted to this subject; a rich source of exciting material exists in many research papers, some of which are quoted in the text but not utilised in the way they should have been. This problem area also provides an excellent opportunity to demonstrate the problem-solving attitude to micropalaeontology.

Chapters on the individual groups are arranged according to the chemical composition of the fossils: calcareous, siliceous and organic-walled. Among the calcareous fossils included are calcareous algae and Bryozoa, which as microfossils differ from the other groups in the sense that they are not represented as biologic entities but fragments of larger organisms. Palaeontology is to a very large extent "fragmentology"

increase since 1976 and will enable the newsletter to be self financing. At May 1 only 80 members had paid their dues for the current year, so to encourage all others to remember their financial commitments a separate sheet is appended to this newsletter to accompany payment.

BENEFITS OF MEMBERSHIP

The IOP Executive is anxious to increase the activities of the organization and to make more services available to members. One particularly important way in which this can be done is to encourage more bibliographies of palaeobotany to be distributed, and suggestions about how this may be achieved will be announced in the next newsletter. At present all members of IOP are able to receive: three newsletters a year, a copy of the address list of western members (this is revised at least twice a year), and a copy of the Amsterdam 1935 nomenclature definitions (see pagell). We hope to increase this list each year and welcome suggestions of new items to include. For efficiency, members receive only the newsletter automatically, and requests to the secretary are necessary for the despatch of all other benefits free of charge by surface mail.

REPORTS OF RECENT MEETINGS

USSR COLLOQUIUM ON THE SYSTEMATICS OF U. PALAEOZOIC PLANTS

This was held in Moscow from 6th - 8th February 1979 at the Geological Institute of the USSR Academy of Sciences. The chairman was S.V. Meyen and the secretary A.V. Gomankov; there were 27 participants from 18 organizations of 13 cities.

In the introductory lecture S.V. Meyen reviewed the latest data on the morphology and systematics of lepidophytes, articulates, pteridosperms, cordaites and conifers of the Upper Palaeozoic Angara floras and their bearing on phytogeography. He concluded among other things that for the Middle - Late Permian a new phytogeographical area should be recognised, namely the sub-Angara area covering the territories between the Angara area with the Kuznetsk-Pechora flora and the belt with Euramerian (Atlantic) and Cathaysian floras. The eastern-most localities of the sub-Angara area are known in the Nan-Shan Range in China where the flora of Bexell's zone C has been revised by Durante. The sub-Angara flora is also known in Middle Asia (Uzbekistan), and its derivatives were recorded in Afghanistan (Meyen, unpublished), near Vladivostok (Burago) and, probably in the Kamchatka peninsula (palynological data of I.A. Sivertseva). Links between sub-Angara and North American floras were suggested.

M.A. Senkevich (Alma-Ata) spoke of the Devonian lepidophytes of Kazakhstan which show a very significant taxonomic diversity exceeding everything known in other Devonian floras. There are ligulate lepidophyte there. M.I. Radchenko (Alma-Ata) outlined the Carboniferous plant megafossil assemblages of Kazakhstan and demonstrated collections of lepidophytes and pteridosperms. V.G. Zimina (Vladivostok) spoke about some peculiar plants from the Permian near Vladivostok. She found interesting conifers, which like the Gondwanan *Buriadia* produced solitary apical seeds on leafy twigs. Similar conifers were shown by G.G. Manaeva (Vorkuta) from the Permian of the Pechora basin. S.G. Gorelova (Novosibirsk) presented regional phytostatigraphical schemes for discussion, based on material from the Upper Palaeozoic of the Kuznet and Gorlovka basins. A.V. Bogov (Kazan) spoke about *Phylladoderma* from the Ufimian and Kazanian of Tataria. He thinks that fine epidermal characters of the genus may be used in phytostatigraphical analysis.

M.V. Durante (Moscow) presented the preliminary results of her study of the previously mentioned Nan-Shan flora from the Zone C. This flora replaces Cathaysian assemblages in older beds. Most of Hallé's identifications from the Zone C have proved to be erroneous. The Zone C yields Pursongia-Tatarina like leaves with associated Peltaspermium and Quadrocladus like conifers, as in the sub-Angara Upper Tatarian of the Russian platform. There are also common plants similar to those of the Angaran Pechora-Kuznets type. G.N. Sadovnikov (Moscow) presented his observations on the anatomical structure of the early mesophyte articulates (uppermost Permian to lowermost Jurassic) which are usually referred to the Equisetaceae, but showing some Calamitalean features. Including the presence of secondary wood in the axes. A.R. Ananiev (Tomsk) showed colour transparencies of some Devonian plants and the fossiliferous outcrops in south Siberia.

Participants at the colloquium demonstrated a number of their collections. L.I. Savitskaya and T.A. Iskanderkhodzhaev (both from Tashkent) demonstrated a large number of specimens from the Carboniferous-Permian of Uzbekistan, including originals of their monographic work which was written with T.A. Sixtel. Some of the plants have undisputable Euramerican affinity (Callipteris and Schuetzia for example) whereas some others are endemic. Some conifers which used to have been identified as Lebachia lack cuticle and do not show characteristic pinnate branching of the twigs; their affinity remains uncertain. A.R. Ananiev brought with him some well known Cambrian Aldanophyton and Lower Carboniferous "Sublepidodendron" Igryschense A. Anan. In his specimens of Aldanophyton it is possible to see cylindrical "shoots" with a thin organic surface layer and internal cavity filled with sediment. Spirally arranged appendages occasionally show furcation. The widened basal part of the "shoot" bears outgrowths which look like rhizoids from an external view. No cellular detail can be seen in reflected light or UV. "Sublepidodendron" Igryschense served as the type species for the genus Pseudolepidodendron V. Anan., and participants of the colloquium found that there are no essential differences between this genus and Eskdalia. M.A. Senkevich demonstrated Devonian lepidophytes from Kazakhstan with ligular pits and leaf cushions as in Tomiodendron. K.Z. Salmenova (Alma-Ata) presented her collection from the Permian of Kazakhstan, including interesting fructifications which show external resemblance to Peltaspermium; but they have a stalk attached to the convex surface of the megasporangiate (?) disc. Other collections being demonstrated came from the Permian of the Pechora basin (L.A. Fefilova, Syktyvkar; G.G. Manaeva, Vorkuta; G.G. Smoller, Ukhta), Upper Permian of the Volga river valley (N.K. Esaulova, Kazan), Lower Permian of the fore-Urals - mostly cuticles of cordate leaves (L.V. Glukhova, Krasnojarsk), Lower Carboniferous of the Urals - mostly lepidophytes (G. Vasilieva, Leningrad). Collections kept in the Geological Institute were also examined, including the originals to the publications of Schmalhausen, Zalesky, Neuburg, Rasskazova, Meyen etc).

LINNEAN SOCIETY OF LONDON, EASTER PALAEOBOTANY MEETING.

Of the 60 or so palaeobotanists who attended this one day session of lectures and discussion six were from overseas. As usual, there was lively discussion both at the meeting in the British Museum (Natural History)'s new palaeontology conference room and at lunch and dinner in local public houses. The meeting was ably organised by Peter Crane. The following summary of the proceedings is taken from the abstracts which were circulated to participants:

K.L. Alvin, London - Cheirolepidaceae: A prestigious family?

On evidence of Classopollis pollen the family was of outstanding importance, especially in lower palaeolatitudes, prior to the rise of the angiosperms. Our knowledge of these Classopollis producers is still

the close of the Mesozoic it is bringing the "angiosperm pollen provinces" of Aquilapollenites and Normapollis.

The treatment of the subject is much as in the Russian volume. Two introductory chapters are by Vakhrameev and Meyen alone and review the interrelationships of palaeoclimatic regions and past plant distribution. They summarise the history of the recognition of major floristic provinces (phytochoria) in the geological past. These are followed by a series of chapters dealing sequentially with floral distribution. There are 31 maps mostly showing fossil plant localities, with a few giving the distribution of records of individual genera, for the Mesozoic. Such detailed treatment almost inevitably leads to rather crowded cluttered maps (as when a 12 x 12cm map of Eurasia gives a key to over 100 named localities of Late Carboniferous age). But the presentation is certainly a vast improvement in clarity on the Russian edition. Most of the floristic data is derived from "compression" floras of megafossils, until we reach the Late Cretaceous and early Tertiary, when palynological evidence is freely drawn on. Citations to the literature are given for most of the principal sites plotted on the maps, and in many cases floristic lists (at least at generic level) are given. In the final chapter, Vakhrameev and Meyen attempt to integrate the results with broader evolutionary and climatic considerations. Among many interesting themes, they expand on the cyclical, two phase, character of each of the three major palaeobotanical time units - the Palaeophytic, Mesophytic and Cainophytic; each opens with a broad world-wide floristic uniformity, and closes with floral provinces having a strong regional character. It is only six years since the publication of two major reviews, dealing (in part) with the palaeo-distribution of plants - Hallam's Atlas of Palaeobiogeography and Hughes' Organisms and Continents Through Time. One might justifiably query what new contribution (other than a German language work) this volume is making. The answer lies in the fact that the reviews in Hallam's and Hughes' compilations were interpretive and pre-digested; their aim was generally to present broad results rather than raw data. The present work gives a much fuller documentation of the factual data; while the limits of floristic provinces are shown on the maps, the reader is presented more fully with the primary information on which they are based. There are over 700 references, and full indices to plant names and authors. As a palaeobotanical reference source, alone, this work is a most valuable contribution to the literature; but it is also a basis on which to test hypotheses of palaeoclimate and of plate movement. I hope it will be seen and read by a broader readership than palaeobotanists. All biogeographers owe a debt to its four Russian authors for their vigorous revision of the original, and to Dr Daber for putting this work into a language more accessible to western readers. W.G. CHALONER, London.

AN INTRODUCTION TO MARINE MICROPALAEONTOLOGY. Ed. B.U. Haq & A. Boersma, 1978. Elsevier, New York, 376pp. \$24.00.

This book will be highly appreciated by students and teachers of micropalaeontology since it is the first comprehensive text dealing with all the major groups of fossils, and some minor ones, now being used in marine micropalaeontology. As a teacher of palaeobotany, too, I welcome the book. That is because it provides a most useful supplement to existing palaeobotanical texts which so often neglect the algae; this book contains four good chapters on fossil planktonic algae (coccolithophores, diatoms, silicoflagellates and dinoflagellates) and in addition provides an excellent account of calcareous algae.

Palaeobotanists may be curious to know what is, so to speak, the

NEW PUBLICATIONS

COMITE DES TRAVAUX HISTORIQUES ET SCIENTIFIQUES

A meeting of palaeobotanists was held in Nancy, France in March 1978 and the 17 papers presented have recently been published by this organization. The volume is available at the Bibliotheque Nationale, 58 rue de Richelieu, 75084 Paris, Cedex 02 for 65 Francs. The 225 pages contain a wide range of palaeobotanical articles; a xerox copy of the contents can be obtained from the IOP secretary.

PALYNODATA

Two recent surveys of palynological literature are available from G.O.W. Kremp, Department of Geosciences, University of Arizona, Tucson 85711, USA. The earliest appearance worldwide of tricolpate pollen and the origin of angiosperms. The importance of palynology in determining worldwide the Pennsylvanian-Permian boundary. The costs are not included in the February 1979 price list, so write to Professor Kremp for details.

PALYNOLOGIA

The special volume 1 of this publication was published in 1978 and contains 505 pages. It contains a selection of papers presented at the Colloquium of Palynology which was held in León Spain during September 1977. Send 3,000Pts plus 75Pts for surface mail to: Instituto Palinológico, Apartado 244, León, Spain.

BOOK REVIEWS

PALÄOZOISCHE UND MESOZOISCHE FLOREN EURASIENS UND DIE PHYLOGEOGRAPHIE DIESER ZEIT. V.A. Vakhrameev, I.A. Dobruskina, S.V. Meyen and E.D. Zaklinskaja (revised edition translated from the Russian by R. Daber) 1978. Fischer Verlag, Jena, DDR. 300pp. 30 text-figs., 79M. Darwin called phytogeography "that grand subject, that almost-keystone to the laws of nature". When we see phytogeography changing in the dimension of time it is bringing us even closer to that keystone. That is perhaps one of the most important aspects of this book, which presents the changing distribution of terrestrial fossil plants of Eurasia through some three hundred million years. The book is by four leading Russian palaeobotanists and was originally published in 1970 as volume 208 of the Transactions of the Geological Institute of the Academy of Science, Moscow. This edition is based on that volume; but its four authors have totally revised and somewhat shortened the original Russian text, and the up-dated version has been translated from Russian into German by Rudolf Daber. The time span covered is from the close of the Silurian, with the earliest records of terrestrial plants, to the beginning of the Tertiary period, so that it takes in the early divergence and spread of the angiosperms. The area dealt with may seem a less logical choice. It represents, of course, a land mass centring on Russia, with the adjoining continental areas of Europe, Asia Minor, India and the "Cathaysian" province including Japan and Malaysia. In palaeofloristic terms this in fact constitutes quite an informative, if rather arbitrary region. It includes for example, representatives of the four major Palaeozoic floristic provinces (Eurameria, Angara, Cathaysia and Gondwana), and by

meagre, but a picture of considerable morphological diversity begins to emerge; this may reflect ecological diversity including specialisations unknown amongst the conifers.

P.H. Smith, London - Tertiary fossil fungi

The different types of fungal structures encountered: fruiting bodies, hyphae and spores, were reviewed and some suggestions about the appropriate taxonomic and nomenclatural procedures were given. R.A. Spicer, London (USGS) - Alaskan Cretaceous angiosperm leaf impressions

Extensive collections of Upper Cretaceous plant megafossils have been made in the last few years from the Alaskan peninsular, south west Alaska and the Alaskan Arctic slope. Angiosperm leaf impressions are numerically dominant although some localities have also yielded a variety of gymnosperm material. Leaves belonging to the Hamamelidae are particularly abundant and comparisons based on leaf architectural characters suggest that by the mid Upper Cretaceous the differentiation between the orders Eupteleales and Hamamelidales had not yet become established. The nature and possible relationships of some of the specimens were described.

C.R. Hill, London - Phylogenetic systematics and palaeobotany. The theory and practice of biological systematics have probably never been so intensively scrutinised as during the past decade. Many zoologists, notably entomologists and ichthyologists, became aware of the highly significant work of the German entomologist W. Hennig, first published nearly thirty years ago. Hennig provided a methodology for a general biological reference system of great elegance compared to other systems, based empirically on determining nested sets of shared derived character states (synapomorphies). The wholly relevant nature of Hennig's system was outlined in relation to palaeobotany and palynology.

H.N. Andrews, New Hampshire, USA - Palaeobotanical reminiscences: the age of Seward

During the afternoon session there was a "debate" on the motion: "This house supports the retention within the I.C.B.N. of organ-genera and form-genera as two distinct taxonomic concepts".

W.G. Chaloner, London, spoke FOR the motion:

The new (1978) edition of the International Code of Botanical Nomenclature now recognises only two categories of fossil plant taxa of generic rank - "genera" and "form-genera". The latter are distinguished from "genera" on the criterion of being unassignable to a family. However, many genera of fossil plants, based on detached organs, have a securely established partial synonymy with each other (eg the stem *Lepidodendron*, cone *Lepidostrobus*, leaf *Lepidophylloides*, megaspore *Lagenicula* and microspore *Lycospora*). Such genera differ fundamentally from genera of extant plants in that although it may be argued that hypothetically *Lycospora* is a "genus of whole plants" our concept of that genus is, and must always be, limited to spores alone. The formal recognition of the organ-genus and form-genus within the Code would give stability to this long-established usage.

M.C. Boulter, London, spoke AGAINST the motion:

The definitions of the terms "organ-genus" and "form-genus" have been changed three times in post 1945 editions of the Code, culminating in a confusing and even ambiguous Article 3.2 of the current Leningrad version. A new draft proposal was tabled and justified. This combines the earlier concepts of organ-genus and form-genus into a single taxon for fossil plants: the "fossil-genus". This is or is not assignable to a family. If it is not assignable to a family it may be referable to a taxon of higher rank. There is support for this action in a number of publications on the subject (eg K. Faegri 1963, Taxon 12; R. Potonie 1964, Taxon 13; F.A. Stafleu 1967, Rev. Palaeobotan. Palynol. 3) and in some of the items that have appeared recently in IOP newsletters. It is

for taxonomy and not nomenclature to decide whether a taxon is "artificial" or "natural". This question is about how the Code can keep that option open.

Professor T.M. Harris, Reading, was chairman for the "debate", and the final vote was in favour of the motion, by 21 votes to 10.

FORTHCOMING MEETINGS

PALEOMYCOLOGICAL COLLOQUIUM, Paris, France, July 1980

This meeting will discuss the fungal affinities of actual and fossil Chitinozoa or Chitiniomycetes and other incertae sedis chitinous organisms from the Upper Precambrian to the Devonian. Introductory lectures will be by P. Taugourdeau and M. Locquin, and illustrated papers and discussion will be published before the end of 1980 in the Cahiers de Micropaleontol. Chitinozoa have been successively compared with testaceous Rhizopodia, various Metazoa, Graptoliths, Hydrozoa and Fungi. The aim of the colloquium is to try to define correctly Chitinozoa and related groups. No registration fee is requested, but write to the Laboratoire de Micropaleontologie, Ecole Pratique des Hautes Etudes, 8 rue de Buffon, 75005 Paris for further details. The second circular will be mailed 2 months before the colloquium with a list of participants and a final list of papers.

JUL 12 1979

LANDMARK EVENTS IN THE EVOLUTION OF PLANTS, Ottawa, Canada, June 1979
A symposium on this theme will be held at Carleton University, Ottawa on Thursday June 21 1979. It is sponsored by the Canadian Botanical Association and the Canadian Association of Palynologists. Among the topics to be presented will be the early evolution of land plants, the origin and evolution of conifers, and the early evolution of phytoplankton. Write to D.C. McGregor, Geological Survey of Canada, Ottawa, Ontario, Canada K1A 0E8 for details.

THE MIOCENE CLARKIA FOSSIL BEDS, Moscow, Idaho, USA, June 1979

These beds are described by Smiley, Gray and Huggins in J. Paleontology 49, 833 - 844, 1975, and it is the senior author who is arranging the symposium. It will include talks on a number of palaeobotanical aspects by J. Smiley, J. Gray, K. Niklas, D. Giannasi, H. Becker, E. Leopold, C.W. Wang, L. Huggins and J.P. Bradbury, along with other reports on the fish, insects and palaeoclimate. The meeting starts on June 4th. and on Thursday June 7th there will be an all day field trip to the Clarkia beds. Details from C.N. Miller, Botany Department, University of Montana, Missoula, Montana 59812, USA.

INTERNATIONAL PALYNOLOGICAL CONFERENCE, Cambridge, England, July 1980

The second circular is now available and includes details of the meetings and booking forms etc. Registration and all forms must be returned before 1st December 1979. A BUSINESS MEETING FOR IOP MEMBERS WILL BE ARRANGED AT THE BEGINNING OF THIS CONFERENCE.

NOMENCLATURE

THE ABUSE OF NAMES

Having read the letter of the late J.M. Schopf in IOP Newsletter 8 I am reminded of one of the commonest symptoms of our sick age: old truths are forgotten. That is why it was high time that someone explained again what a scientific name is. Although "name", as such, is probably as old as human language, today its meaning seems to be misunderstood. The literature on Glossopteris studies for the past 80 years is a good

ARBEITSKREIS FÜR PALAEOBOTANIK UND PALYNOLOGIE (APP)

The 5th annual meeting of the APP was held on 6 - 8 April 1978 in Heerlen, South Limburg, The Netherlands, under the guidance of Dr H.W.J. van Aeren and with the assistance of the Rijks Geologisch Dienst. The 40 participants came from The Netherlands, West Germany, Belgium, Denmark, Austria, Norway and Sweden. They met at the historical place where Professor Jongmans worked and arranged the first Carboniferous congresses. A further historical touch was given by a field trip to the former mining area of South Limburg and the adjacent areas in Belgium and Germany, where they are still holding the lectures given at the meeting were concerned with megafossils (eg The Problem of Cladophora) and microfossils. The papers will be published in Courier Forschungsinstitut Senckenberg 34, Frankfurt am Main 1979 (18DM). The next meeting will be organised by the geological surveys in Hannover from 22 - 24 March 1979.

FIRST SYMPOSIUM ON MESOZOIC CONTINENTAL ECOSYSTEMS

This meeting was held in Paris in September 1978 and was attended by 15 European palaeobotanists. There were 8 contributed papers: Mesozoic floras of Spain, Alvarez-Ramiz, Madrid; Anatomy of the Mesozoic conifer family Cheleropteridaceae, Alvin, London; Fusinite phytoclasts from some British Mesozoic sediments, Cope, London; Frenelopsids and their position within Mesozoic vegetation, Hloustik, Brno; Some Mesozoic petrified forests in Europe and the Sahara, Koeniguer, Paris; A Cenomanian flora in Angers, France, and a Senonian flora in Esqueiro, Portugal, Pons, Lauerjat & Broutin, Paris; A small Jurassic flora as part of a land ecosystem, Reymanova, Krakow; and Palynology and palaeoclimates during the Mesozoic, Reyre, Paris. Some other papers raised problems of relationships between fossil plants and Mesozoic vertebrates: The palaeobiogeography of the Mesozoic, Cox, London; Dinosaurs in Upper Jurassic deposits from Tanzania and the Upper Cretaceous of Canada, Beland & Russel, Ottawa; while P. Taquet, Paris, the organiser of the meeting spoke on the Stratigraphy and Evolution of Cretaceous Terrestrial Vertebrates of the Sahara and J. Maisonneuve, Clermont-Ferrand, on Variations of Atmospheric oxygen during the Mesozoic, to the interest of palaeobotanists. Contributions from the meeting will be published by the French Geological Society. The next meeting will be in Warsaw in 1981.

BIBLIOGRAPHIES

INTERNATIONAL ASSOCIATION FOR ANGIOSPERM PALEOBOTANY (IAAP)

The first miscellaneous publication of IAAP consists of a bibliography of angiosperm paleobotany. It has been compiled by Gary E. Dolph and typed and reproduced at Indiana University. It contains details of the work in progress by IAAP members, work in press, their publications during 1977 and a list of addresses. It is hoped that the method by which the bibliography can be distributed to non-members of IAAP will be announced in the next IOP Newsletter.

GEOLOGY OF POLAND - CATALOGUE OF FOSSILS

Part 3a of this useful series of publications was published in 1977 and deals with fossils from the Tertiary. The 288 page book has detailed compilations of microflora and macroflora, with an index of genera and species. There are 658 references, up to 1975. The book is edited by Wanda Ruhle, Publishing House, Wydawnictwa Geologiczne and can be obtained from Drukarnia Narodowa Zakł 6, Krakow, ul. Orzeszkowej 7. The price is not available, and there is even some uncertainty about the validity of this address: it would be more reliable to try and obtain it on an exchange basis.

S.K. Dutta, H.M. Kapoor, C.G.K. Ramanujam, S.K. Srivastava and B.S. Venkatachala.

SECOND INDIAN PALYNOLOGICAL CONFERENCE

This was held at Central College, Bangalore University during October 1978 and was attended by more than 125 delegates. There were lectures on pollen and plant genetics, pollen biochemistry, palaeopalynology, aeropalynology and mellitopalynology. There was also a symposium on Palynological Education in India.

THIRD INDIAN GEOPHYOLOGICAL CONFERENCE

This is to be held from December 8 - 10 1979 at the Botany Department, Lucknow University, and a symposium on Recent Advances in Cryptogamic Botany will be the main aspect of the meeting. Invited papers on palaeobotany, palynology, morphology and other topics will be presented. For further details contact Dr M.N. Bose, Birbal Sahni Institute of Palaeobotany, Lucknow 226 007, India.

ASOCIACION PALEONTOLOGICA ARGENTINA (APA)

This organization organised a series of meetings on palaeoecology during the end of 1978. The speakers included Azcuy, Romero, Baldoni, Volkheimer and Archangelsky; the APA will publish their lectures in a special issue of its journal Ameghiniana.

LATINAMERICAN BRANCH OF IAAP

There was a meeting of this group in Buenos Aires University during April 1979, coordinated by Dr E. Romero.

INTERNATIONAL WORKING GROUP ON U. PALAEOZOIC COMPRESSION FLORAS

This newly formed group holds its first meeting during the 9th International Congress of Carboniferous Stratigraphy and Geology at Urbana Illinois this month. Details of this meeting and the intent of the organization will appear in the next IOP Newsletter. All palaeobotanists working on Upper Palaeozoic compression fossils should contact H.W. Pfefferkorn, Geology Department, University of Pennsylvania, Philadelphia, PA 19104, USA, for details. It is hoped that the group will have close contact with IOP and will use this newsletter as a means of communication.

NATURE CONSERVANCY COUNCIL, UK.

Work is being carried out on a report of palaeobotanical sites in Britain by C. Cleal (Palaeozoic) and M. Jones (Mesozoic). Both of them are working on Tertiary sites. They are identifying the localities in Britain whose conservation is regarded as essential for the continuation of palaeobotanical research and teaching. These will include type localities, sites of historic importance, sites which include plants of evolutionary importance as well as smaller less well known sites. Their method is to examine, in consultation with all workers with relevant expertise, palaeobotanical localities which are of interest, and then to choose key localities to designate as sites for conservation. It is hoped that this will lead to future management of outstanding localities to prevent over-collecting and other abuses. It will also be possible to reopen sites which have been closed or overgrown. They will be citing the location of all the major collections in the country and where the type material is deposited. A complete bibliography of all palaeobotanical papers that have been published on British material is being produced as part of the review. Both workers would appreciate cooperation from anyone who can be of assistance, by writing to them at Pearl House, Bartholomew Street, Newbury Berkshire RG14 5LS, England.

example of forgetting such "old knowledge".

Going a step further than Schopf: a name, - any name, including the scientific name, - is a symbol to denote a thing, and nothing else. If, for example, Feistmantel gave the name Glossopteris retifera to leaves with certain characters, nobody should use the same name for leaves which display the characters of Glossopteris tortuosa Zeller. Though it happened repeatedly in this century. It happened to many more Glossopteris specific names. By such a practice, not only the specific name is meaningless, but the name of the author, affixed to the specific name, is meaningless also.

The abuse of names was already the consequence of forgetting another old truth, namely the concept behind a specific name. As scientific thinking became more and more influenced by Pragmatism, the concept of species in general became blurred. The role of observation in research was stressed, though obviously a concept cannot be seen, only thought. That is why systematics cannot be separated from philosophy - the science of logical principles.

As long as it is unclear, what we are naming, the how (technical nomenclature) cannot be solved. If the scientific name covers a group of individuals, then the palaeobotanists who assigned different names to leaves with and without fructifications, leaves with and without cuticles, fructifications with and without cuticles, etc., were right. They named certain groups of individual fossils.

The name, however, is designed to express a concept. The object of the concept is an entity with an existence independent of human cognition. This existing reality is manifested in the individuals, irrespective of whether it is represented by whole individuals, or leaves, or fructifications. The researcher recognises this entity, forms a concept, and denotes the concept with a name. In palaeobotany, leaves, fructifications, seeds, etc. are usually found separately. This situation effects the cognitive, or human side of the study. The entity, the object of the concept is independent of this human cognition. It, however, can be recognised to a certain extent by study of leaves or fructifications. Once fossil plant parts are found attached to each other, the knowledge of the entity is increased. The concept and the name then symbolise a more detailed cognition.

When a name was given to a leaf or similar plant part, it did not, and should not denote an organ, but a species presented for human cognition as a leaf, etc., until we are able to learn more about the plant, as a member of a species.

In this respect a name is an abbreviation to express truth. The author has to believe, and then make an effort to prove, that he denotes an entity by the name, otherwise the name cannot be acceptable. All scientists, as humans, make mistakes. An error is possible, however, only in relation to truth.

E. Kovacs-Endrody, Pretoria, South Africa.

ALL YOU PROBABLY WANT TO KNOW ABOUT AMENDMENTS TO THE INTERNATIONAL CODE OF BOTANICAL NOMENCLATURE ("ICBN"), AND MORE.....

Those of us unfortunate souls who have been visited with a vocation to take care of small parts of ICBN tend to assume that the purposes and workings of that Code are matters of common household knowledge. It is a mild, humbling shock to rediscover from time to time that this is far from true. As secretary of the IAPT (International Association for Plant Taxonomy) Committee for Fossil Plants it is my duty, along with the chairman of that Committee (now Professor W.G. Chaloner), to arrange for consideration of proposed amendments to the Code. Many people who use the Code are understandably not aware of the procedures involved, and as Professor Chaloner and I have no desire to keep anything

about the procedures confidential, I accede to Dr Boulter's request to prepare for IOP Newsletter a brief note about how the whole matter operates.

On paper, the adoption of any amendment to the Code is a function of a plenary session of an International Botanical Congress (these occur about every five or six years. In fact, the plenary session almost always simply rubber stamps the decision of the Nomenclature Section of the Congress, which is arranged by the "Bureau of Nomenclature". The Nomenclature Section meets as a rule at the site of the Congress, during a period of a few days just before the convening of the Congress itself. Most proposals formally submitted are voted on by mail before the Congress, and most, but by no means all, of the mail votes are sustained by the votes on the floor of the Nomenclature Section. The preliminary mail vote is only a "guide" and is not binding on anybody. The mail vote is taken from a small number of people - IAPT members, authors of all proposals and members of the IAPT nomenclature committees. Usually an even smaller number of people attend in person for the formal legislative meetings of the Nomenclature Section before the Congress, but many of those who do come carry several votes because they represent institutions which are awarded such multiple votes by the Bureau of Nomenclature.

On the floor of the Nomenclature Section any proposal may be debated and most are, unless: 1, they are held to be editorial and not substantive in content (changes in language, punctuation etc.) - these are referred to the IAPT Editorial Committee for appropriate action. In practice, such referral often means the effective end of the proposal, so that changing "editorial" matters by proposal is well nigh impossible. 2, they are held to be specialist questions that should be decided by the appropriate IAPT specialist committee. Proposals to amend which seem to affect mostly fossil plants are thus referred to the IAPT Committee for Fossil Plants (the present membership of this committee is described on page 10 of this newsletter) and the Nomenclature Section nearly always rubber stamps the committee's recommendation to adopt or reject. However, individuals who are registered for the Nomenclature Section sessions can demand to be heard on any proposal, and sometime this happens, even for a proposal which was referred to the Committee for Fossil Plants*. Almost always, however, the Committee's recommendation is ultimately accepted even when someone demands the right to debate the issue. Once accepted, first by the Nomenclature Section and then by the plenary session of the whole Congress, a proposal to amend is turned over to the Editorial Committee of IAPT for that committee to see to it that the language of the new Code reflects the voted amendment. The Editorial Committee has a meeting during the year following the Congress to come up with the new amended Code.

I have intentionally discussed the last stages of an amendment's history first. If you have an amendment to the Code, please give serious consideration to dropping it - think of the work involved for so many people. However, if you are 100% (well, 90% at least) convinced that your amendment would help the Code, write it out carefully in the following form:

*As botany, unlike zoology, does not have a nomenclatural commission, the list of conserved names is an integral part of the Code itself. Therefore a name can only be conserved by a formal and successful proposal to amend the Code, by conserving a particular name. The procedure is the same as for any other amendment. The conserved name *Calamites Brongniart* for example is as much a part of ICBN as are the rules of priority and any change in the conservation statement for *Calamites* requires a new proposal.

months last year in connection with the Indo-Soviet collaborative project on taphonomy.

J.F. RISBY of the Geological Survey of Queensland visited India earlier this year under the Indo-Australian agreement to revise the gymnospermous plants of the *Glossopteris* flora. He spent three weeks at the Birbal Sahni Institute and also visited the botany departments at Allahabad and Calcutta.

T. DELEVORYAS has received the merit award of the Botanical Society of America for "distinguished contributions to Mesozoic palaeobotany, especially to our knowledge of cycadeoids, cycads and conifers, and the elucidation of the reproductive structures of *Glossopteris*."

HSU JEN of the Institute of Botany, Academia Sinica, 141 Hsichihmen Wai Tachie, Peking, is currently working on the Triassic flora of south China as well as on coal balls.

NEWS OF OTHER INSTITUTIONS

INTERNATIONAL PALAEOONTOLOGICAL ASSOCIATION (IPA)

A report of the activities of IPA from August 1976 to February 1979 has recently been distributed. This contains descriptions of the links between it and other international organizations and reports from some of its international research groups. The paragraph reporting on palaeobotany was written by O.H. Walliser, the secretary of IPA, from whom copies of the document can be obtained. His address is: Geologisch-Palaontologisches Institut, Goldschmidt str 3, D-3400 Göttingen, FRG.

COMMISSION INTERNATIONALE DE MICROFLORE DU PALEOZOIQUE (CIMP)

An impressive 25 page newsletter, number 20, has been distributed earlier this year. Details can be obtained from the secretary, Dr G. Owens, Institute of Geological Sciences, Ring Road Halton, Leeds LS15 8TQ, UK.

INTERNATIONAL COMMISSION FOR PALYNOLOGY (ICP)

The second ICP newsletter was published in December 1978 and contains details of the Cambridge congress, extracts from the IOP newsletter and two photographs. Details from J.E. Canright, Department of Botany, Arizona State University, Tempe, Arizona 85281, USA.

AFRICAN COMMITTEE FOR PALYNOLOGY (ACP)

This newly constituted organization has published its first newsletter. At March 1979 there were 30 members, though it is hoped that new members will be attracted from other regions. If you are interested in African palynological problems write to the ACP: Dr J. Coetzee, Institute for Environmental Sciences, University of the O.F.S., Bloemfontein, South Africa.

INDIAN ASSOCIATION OF PALYNOSTRATIGRAPHERS (IAP)

Indian palynologists have formed this new association, devoted to the augmentation and dissemination of palynological data as a tool for biostratigraphic studies. The association will support projects of general interest to palynostratigraphers, provide a platform for the presentation of research studies before a competent and critical audience, and will furnish avenues for the publication of research studies. The IAP plans to publish a journal of an international standard beginning in January 1980. Enquiries should be made to: Dr H.K. Maheshwari, Birbal Sahni Institute of Palaeobotany, 53 University Road, Lucknow 226 007, India.

The managing council for 1979 is: President, D.C. Bharadwaj; Vice-president, S.C.D. Sah; Secretary, K.P. Jain; Treasurer, R.S. Tiwari; Business Manager, H.P. Gupta; Editor, H.K. Maheshwari; Councillors,

Cardiolepis in the old collection of Kh. R. Dombrovskaya; this was transferred, macerated and studied by us jointly. The maceration of the compression near the alleged mouth revealed a tubular thick cuticle inside the capsule, which is indistinguishable from that of the stalk. Around this tubular cuticle multiple micropylar tubes were found to be closely adpressed. The stalk has proved to be entering the mouth, and the micropylar tubes are arranged around the stalk. It seems that the stalk easily separated from the capsule. That is why Meyen could not find the stalk when the mouth was well seen. On the other hand, when the stalk was still attached, it prevented seeing the mouth. Thus, the previous interpretation of Cardiolepis as an inverted capsule (comparable with multiovulate epimathium) has proved to be erroneous. Presently we tentatively interpret the capsule as a semiclosed peltate structure, the margin of which is bent down and embraces the stalk. The capsule is comparable with Peltaspermum in basic organization. However the leaves of these plants are strikingly different from those of all known pteridosperms. These leaves (genus Phylladoderma) have one vein entering the base, parallel venation in the middle of the lamina, and convergency of veins in the apex (as in Podozamites, Araucariodendron, Agathis). Thick resin ducts between veins or along veins (and stimulating veins on imprints) as well as longitudinally orientated stomata also prevent attribution of the plants to the pteridosperms. The leaves are externally of coniferalean habit. The combination of such leaves and capsules is unique among gymnosperms. Therefore these plants deserve separation into an independent family (Cardiolepidaceae). However the earlier placing of the family into the conifers is now doubtful. Before finding petrified axes with preserved wood structure, and male fructifications (the pollen found in the micropyle of Cardiolepis are of Vesicaspora type) it is premature to judge on the place of the family among the gymnosperms. We do not know when our joint study of new materials on Cardiolepis will be completed for publication. In the meantime, we would like to inform our colleagues by this informal note, that published data on the interpretation of Cardiolepis needs essential corrections.

S.V. MEYEN AND H.G. SMOLLER, Moscow.

NEWS OF PALAEOBOTANISTS

- S. CHITALEY is visiting the United States this year and is interested in giving lectures to university groups on the Intertrappean flora on which she has worked for the last 30 years. Write to her at: 7695 York Road, Parma, Ohio 44130 or call her at (216) 843 8638.
- A.K. GHOSH celebrates his 75th birthday on 22 September 1979. A special commemoration committee has arranged a Symposium on evolutionary biology and biostratigraphy, and the papers contributed will be published as a commemoration volume to be presented to Professor Ghosh.
- L.V. VLADIMIROVITCH, Moscow 113127, Sadovnicheskaya nab. 71, Institute of Mineralogy, is preparing an illustrated book entitled "Geology in badges and emblems". He is anxious to receive examples of badges and emblems of palaeobotanical meetings and organizations.
- T.M. HARRIS of the University of Reading is the first recipient of "the palaeobotanical society international medal" which has been instituted this year by the Palaeobotanical Society at the Birbal Sahni Institute, Lucknow.
- A.L. TAKHTAJAN, Leningrad, visited the Birbal Sahni Institute for two

A proposal to amend Art.n of ICBN, by ("...deleting such and such words...", or whatever).
 Art. n., or Art. n., para. n., or whatever, would then read: (give the new wording of the paragraph).

Write an explanation of why this is important, complete with literature references. I prefer the actual proposed amendment to be at the very beginning, or (in my opinion, less satisfactory) at the very end of the text of the paper. Submit the completed ms to Taxon (editor: Dr F.A. Stafleu, 19.02, Tweede Transitorium, Uithof, Utrecht, The Netherlands). It is actually not compulsory to publish the proposals first in Taxon but they must be brought to the attention of the Bureau of Nomenclature to reach eventually the floor of the Nomenclature Section, and sending the proposals directly to Taxon, IAPT's journal, accomplishes this. If your proposal affects mostly fossil plants, the IAPT Committee on Fossil Plants will consider it. A referee or two will be selected. The secretary will then circulate to the Committee on Fossil Plants the (anonymous) opinions obtained, and ask for a mail vote of the committee for or against each fossil plant proposal (including proposals to conserve names). Proposals of all sorts received by the IAPT editor (ordinarily by publication in Taxon) by a required date will appear in a special publication of IAPT listing all proposals, giving each a number, reporting opinions of specialist committees such as ours, and calling for a general mail vote as mentioned earlier. This publication and a ballot are sent to the people eligible to vote in the mail vote. The Committee for Fossil Plants meets in person at the Congress before or during the Nomenclature Section's meeting, to draw up its final report, which is normally presented by the chairman or secretary, when called on by the chairman of the Nomenclature Section, usually at the very end of the several-day session. This report deals with all the proposals referred to the committee and may produce a new compromise proposal or proposals, in reaction to other overlapping or conflicting proposals, or even to last minute proposals not published in Taxon (this was done at Leningrad for organ-genera). Everyone in the Nomenclature Section is very tired by this time, and many have left to get ready for other activities at the Congress. Furthermore, plant systematists in general are not too concerned about fossil plants - it is actually depressing that the palaeobotanical representatives have relatively little influence. Modern plant systematics is in the driver's seat of IAPT. As a rule therefore, the recommendations of the Committee on Fossil Plants are ordinarily accepted with little, token, or no opposition.

So if you have a proposal, including a conservation proposal, remember:

- 1, that it must (by publication in Taxon, in effect) be brought to the agenda of the Bureau of Nomenclature in time;
- 2, that the longer or more complicated it is, the less likely a proposal is to be adopted, because all of us react negatively to complicated matters that may in unforeseen ways affect other things. It is more likely that you will get your pet ideas adopted piecemeal, over a period of years, if you can persuade us of their desirability, than you will get six pages of changes at once,
- 3, that the more clearly you explain your reasons for desiring change, and the more carefully you arrange the language so as to avoid ambiguity or mistakes, the more likely the amendment is to go through.

In theory, a person could go directly before a plenary session of the Congress and move the adoption of an amendment to the Code and get a favourable vote - thereby bypassing the Nomenclature Section, the committees, Taxon, the whole thing. This is about as likely to happen as that a goalie will score in ice hockey.

One very good plan is to discuss your projected amendment with the secretary (me) beforehand. Our committee has had only three secretaries in modern time - H. Hamshaw Thomas, Sergius H. Mamay and A. Traverse, so the secretary is on top of the history of various provisions of the Code. You will get free advice and help.

A. TRAVERSE, Secretary, IAPT Committee for Fossil Plants.
Deike Building, Pennsylvania State University, University Park,
Pennsylvania 16802, USA.

MEMBERS OF IAPT COMMITTEE FOR FOSSIL PLANTS

At May 1 1979 the membership of the committee was as follows:
Chairman: W.G. Chaloner, London; Secretary: A. Traverse, Pennsylvania;
Members: S. Archangelsky, Buenos Aires; H. Banks, New York; T. Delevoryas,
Texas; W.R. Evitt, California; K. Faegri, Bergen; J. Jansonius, Alberta;
F.P. Jonker, The Netherlands; V. Krassilov, Vladivostok; D.B. Lellinger,
Washington DC; H.K. Maheshwari, Lucknow; N.D. Mchedlishvili, Leningrad;
S.V. Meyen, Moscow; J. Muller, The Netherlands; N.S. Snigirevskaya,
Leningrad.

TROUBLE WITH PARENTHESES

As well as having to reflect on reasons for amending the ICBN, palaeobotanists also have to ask if they are following the rules of the Code as they exist now. It seems to me that the use of parentheses is often incorrect, strictly according to the Code, and that an unfortunate habit of misuse has become fashionable.

For instance, on page 62 of R. Potonie (1966) we read:

"Lycopodiacidites (COUP. 1953) R. POT. 1956"

This means that Couper (1953, page 26) was the first author of the genus and that R. Potonie (1956, page 39) has changed the diagnosis. But in this case the use of parentheses does not agree with the ICBN Article 47: "An alteration of the diagnostic characters or of the circumscription of a taxon without the exclusion of the type does not warrant the citation of the name of an author other than the one who first published its name." But: "when the alteration has been considerable, the nature of change may be indicated by adding such words as emendavit (emend.) followed by the author responsible for the change"

(Recommendation 47a). The example of the Code is quite clear too:
"Phyllanthus L. emend. Mull.". Consequently, Potonie 1966 should read:

"Lycopodiacidites COUP. 1953 emend. R.POT. 1956"

At the first glance the difference between these two versions seems very slight, but there are two remarkable points:

1. In using parentheses in our example, always most authors must be cited. In the correct form it is not obligatory to do so - in a short citation it is permitted to write only the first author: Lycopodiacidites Couper 1953.

2. It is strictly prescribed to use parentheses in connection with the names of species (ICBN Article 49), but in another sense: when one species is transferred to another genus, or when a taxon of lower rank than genus is altered in rank. If we would consequently use parentheses also at an emendation of species, it would bring much confusion.

I recommend that palaeobotanists only use parentheses in the prescribed way.

F. SCHAARSCHMIDT, Frankfurt.

ORGAN-GENERA AND FORM-GENERA IN HISTORICAL PERSPECTIVE

Although there were five "versions" of the Code published between 1867 and 1947, and although serious study of fossil plants dates back even before 1820, there was very little legislation for fossil taxonomists before the Second World War, and no attempt to provide special taxa

for detached plant parts which comprise most fossils. Nevertheless, palaeobotanists were conscious that their special problems required special nomenclatural provision, and these were discussed at the sixth International Botanical Congress held in Amsterdam in 1935. Due to the imminence of the war, the report of the Subsection of Nomenclature at the Congress was never published, and all that remains is a privately duplicated account of the decisions made, written and circulated by T.A. Sprague in 1948. This includes material prepared by H. Hamshaw Thomas who was then secretary of the Section for Palaeobotany, which embodies the special provisions concerning the names of fossil plants which were agreed at Amsterdam. This is set out as a special appendix and was the first attempt to formally distinguish organ-genera and form-genera as taxa within the Code. The document is also important in that it shows that the organ-genus concept was first based on morphological as well as phylogenetic reasoning. Although it is now accepted by most thinkers that within a single living or fossil genus the variability of an organ may be very great, the Amsterdam definitions were much concerned with a provisional assignment to an organ-genus, in the expectation that all the fossil plant's organs (many organ-genera) would be applicable eventually to one complete plant.

The Amsterdam proposals were particularly controversial because they defined taxa as specimens rather than as abstract taxonomic units; they prevented educated inferences playing any part in the process of fossil plant taxonomy in much the same way that present morphographic systems of classification in palynology prevent evidence of alliance from being demonstrated. Thus, the original definitions of form-genera meant that there would be no type species and that the taxa could not be emended. But it was clear that organ-genera were to be grouped in families and that form-genera were of unknown taxonomic relationship.

Through my interest in the taxonomy of fossil plants from the Tertiary Dr F.A. Stafleu recently sent me his copy of "T.A. Sprague, 1948, International Rules of Botanical Nomenclature, Supplement, embodying the alterations made at Amsterdam in 1935." I have recently had the parts of this relevant to palaeobotanists retyped and duplicated. If you are interested to receive a free copy please let me know and I will send one by surface mail.

M.C. BOULTER, London.

INTERPRETATION OF Cardiolepis - an unfortunate error

In "Palaeontological Journal" 1977, number 3 one of us (S.V.M.) described a new family Cardiolepidaceae on the basis of a new interpretation of Cardiolepis Neuburg from the Upper Permian of the Pechora basin. Subsequently, this interpretation was repeated in Meyen's paper in "Palaeobotanist" - the Sylver volume which is in press. Neuburg regarded Cardiolepis as possessing coniferalean seed scales with paired inverted seeds. After sectioning and maceration of the compressions SVM has come to the conclusion that Cardiolepis is a nearly closed capsule with multiple seeds inside, and micropylar tubes which come together to a mouth situated near the attachment of the capsule stalk. Meyen noted that in none of the specimens studied were the mouth and stalk observed together. The specimen with the best preserved mouth is broken just near the opening. Inside the mouth there are no other details visible, except for multiple micropylar tubes whose tips are arranged along the mouth opening. In the specimen where the stalk is well preserved, all the area in the vicinity of the stalk attachment is covered with a mass of solid resin, squeezed out from the capsule. Recently Halina G. Smoller found a well preserved specimen of