

# IOP NEWSLETTER 13

## INTERNATIONAL ORGANIZATION OF PALAEOBOTANY

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES  
-SECTION FOR PALAEOBOTANY  
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NOVEMBER 1980

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PLEASE MAIL NEWS AND CORRESPONDENCE TO YOUR REGIONAL REPRESENTATIVE OR TO THE SECRETARY FOR THE NEXT NEWSLETTER 14. The views expressed in the newsletter are those of its correspondents and do not necessarily reflect the policy of IOP.

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### IOP NEWS

#### ELECTION OF OFFICERS

The last newsletter included an item asking for nominations to fill vacancies on the Executive Committee for president, secretary, three members at large and congress member. So far only one nomination has been received: Harlan Banks has nominated M.C. Boulter for the post of secretary. I am prepared to stand for election. That newsletter item included a closing date for nominations before December 1st 1980. Due to the lack of response that deadline is now extended to January 31st. PLEASE MAKE A NOMINATION NOW.

#### APATHY WITHIN THE MEMBERSHIP

The secretary can see a clear reduction in correspondence from IOP members over the last months. That is why the newsletters are becoming shorter. The weakness of democracy is that the membership becomes lazy. DO PLEASE FEED THE SECRETARY WITH COMMUNICATIONS for the newsletter and for the executive. Perhaps language is one problem, but many groups of English speaking palaeobotanists are silent. Africa, East Europe, France, Japan, India and West Germany (in alphabetical order) are particularly silent. IOP is not just a North Atlantic alliance. Please say something to the world through this newsletter; I do not believe that palaeobotanists are this dead.

#### IOP-PALEOSERVICES PRIZE

Newsletter 10 announced that Paleoservices Ltd, Watford, England has agreed to give \$100 each year to an IOP member selected by the executive committee. This year's money is in the bank but the committee has failed to decide the criteria for the choice of the recipient. It is a difficult and lengthy decision to make by international correspondence.

The money will be retained until the time of the Sydney International Botanical Congress when it is hoped that an award will be made for the best presentation by a palaeobotanist under 30 years of age. Other suggestions for alternative criteria will be welcomed. IOP thanks Vittorio Roveda for the generosity of Paleoservices Ltd in giving this money to stimulate palaeobotanical progress.

## SECOND IOP INTERNATIONAL PALAEOBOTANICAL CONFERENCE

The paleobotanical Section of the Botanical Society of America held its annual meeting at the University of British Columbia in Vancouver, Canada, from July 12 - 16 1980. There was enthusiasm to set in motion the plans for a second IOP conference to be held in Canada, at Edmonton, Alberta, following the International Palynological Congress that will take place in Calgary in four years time. People able to help planning this meeting should contact Dr. T.N. Taylor, Department of Botany, The Ohio State University, Columbus, Ohio 43210, USA.

## THIRD IOP INTERNATIONAL PALAEOBOTANICAL CONFERENCE

Jack Douglas writes from Australia that ICP hopes to assemble in 1988 at Brisbane, and that IOP might wish to co-operate at this meeting. Preliminary talks have not yet started and Dr. Douglas would welcome comments to help.

## IOP DINNER

The Sydney International Botanical Congress organisers plan a combined PPAA, IPC, IOP dinner. It is to be hoped that the gastronomic quality is superior to more recent IPC fare.

## FIRST INTERNATIONAL PALAEOBOTANICAL CONFERENCE ACCOUNTS

Chris Hill, British Museum Natural History was the treasurer of this meeting and has provided the following details of the accounts:

INCOME from participants' subscriptions.....	£7,778.14
EXPENDITURE on excursions.....	3,614.00
Reading lectures and accomodation.....	3,640.00
Printing, postage, insurance etc.....	391.00
	<u>£7,645.00</u>

The organizing committee has very kindly agreed to contribute the £133 profit to IOP.

## FORTHCOMING MEETINGS

### 13 INTERNATIONAL BOTANICAL CONGRESS Sydney August 1981

There will be a General Assembly of IOP at 18.00hrs one evening during the Sydney Congress. The first item on the agenda will be concerned with the election of officers. Please send other topics for discussion to the secretary.

Communicate with Dr. J. Douglas, Department of Minerals and Energy, 107 Russell Street, Melbourne, Victoria 3000, Australia for further details of the meetings.

### THIRD INTERNATIONAL MEETING ON EVOLUTIONARY BIOLOGY Brno August 1981

This is a symposium on Evolution and Environment and is organized by the Department of Evolutionary Biology, Institute of Microbiology, at the Czechoslovak Academy of Sciences. Two of the six topics will be of interest to palaeobotanists:

**PALAEOBIOLOGICAL ENVIRONMENT:** the changing conditions of life since its origin 3.5Ma, the question of microevolution, the question of macroevolution, causes of the extinction of species in the geological past, effects of continental drift and climatic changes, long-term interactions of organisms.

**THE HISTORY OF THE GIVEN PROBLEM:** the views of J.B. Lamarck, Charles Darwin and the "variability related to the Conditions of life". The approach of Ernst Haeckel and A. Weismann. The views of practitioners such as I.V. Michurin, R. Daniel and L. Burbanks. The standpoint of official genetics. The question during the last three decades. Write to: The Organizing Committee, Department of Evolutionary Biology, MBU CSAV, Na Folimance 5, 120 00 PRAHA 2, Czechoslovakia.

**THIRD N. AMERICAN PALAEONTOLOGICAL CONFERENCE** August 5-7 1982

This is sponsored by the Paleobotanical Section of the Botanical Society of America and is titled: "Geological Factors and the Evolution of Plants". Contributors will be asked to address the effects of geological factors upon the evolutionary history of plants or the reciprocal influence of plants upon geological processes. Both botanical and geological perspectives are desired, and an interdisciplinary approach is essential.

Interested contributors are invited to submit a title and abstract (on a form available from the secretary) of the material they intend to cover to the steering committee on or before August 1, 1981. The steering committee will choose from among the submissions so as to render the final presentations of uniform content and quality (sic). Acceptance/rejection notification will be made before the contributed paper deadline of September 15, 1981. Participants to the symposium will be invited to submit a manuscript at the time of the symposium for inclusion in a symposium volume. Write to Bruce H. Tiffney, Secretary of the Symposium Steering Committee, Department of Biology, Yale University, 260 Whitney Avenue, P.O. Box 6666, New Haven, Conn. 06511, USA.

## REPORTS ON RECENT MEETINGS

**FIRST INTERNATIONAL PALAEOBOTANICAL CONFERENCE** Reading, July 1980

This conference opened with a two day field excursion to Yorkshire with excellent accomodation at York University. Visits were made to the classical Jurassic localities at Scalby Ness, Hasty Bank (with a small group visiting a new locality at nearby Bolton Head) and Cayton Bay. Pre-conference volunteers had cleared and exposed the locality so everyone had the opportunity to make representative collections. The only problem was the weather which was not particularly kind during the visit to Hasty Bank and Bolton Head: they are both on exposed positions on the northern edge of the North Yorkshire Moors. One overseas visitor spoke out of the mist and rain: "at last I understand Bronte's 'Wuthering Heights'".

The 80 or more field participants were joined by at least 40 others at the lecture sessions at the University of Reading. The two days of lectures were arranged as two concurrent programmes and choices were often difficult to make. There were evening discussion groups on nomenclature and other topical subjects. More than 40 demonstrations were available throughout the conference. On the final day, one coach party visited the Tertiary at Sheppey and the British Museum Natural History; the other visited two Carboniferous localities - Kilmersden Colliery (Westphalian D) and Cattybrook Brick Pit (Westphalian B) - and the Rhaetian rock at Vallis Vale where a fortunate few found the bryophyte Niadita.

Peter Crane and Chris Hill organized this conference brilliantly; and the bars stayed open late.

# PALAEOBOTANICAL SECTION B.S.A. Vancouver, July 1980

The meeting included botanists from the United States and Canada and contained 32 contributions covering a broad spectrum of interest in taxa, techniques and geological time. Some details were presented in the stop press in IOP Newsletter 12. The Palaeobotanical Section expressed enthusiasm in setting into motion plans for a second IOP conference to be held in Edmonton, Alberta, Canada, following the International Palynological Conference that will take place in Calgary, Canada, in four years time. Write to Dr. T.N. Taylor, Department of Botany, The Ohio State University, Columbus, Ohio 43210, USA.

# BRITISH MICROPALAEONTOLOGICAL SOCIETY, London November 1980

The annual general meeting at the British Museum Natural History heard Dr. D.D. Bayliss of Paleoservices Ltd speak on an "Overview of a Palaeontological Consultancy". The 40 or more participants drank at the wine reception which followed at tea time.

# LONDON PALAEOBOTANICAL SEMINARS, London, October 1980

The series of lectures and discussion groups that had previously been held at Birkbeck College are resumed now at Bedford College, in the middle of Regent's Park. They are following Professor W.G. Chaloner around London. The first programme included:

Dr. R. Spicer, U.S.G.S. and Imperial College London, "Alaskan North Slope Vegetation from the Aptian to the Palaeogene."

Dr. Else-Marie Friis, Aarhus University and Bedford College, "Angiosperm flowers, fruits and seeds from the Cretaceous of Southern Sweden."

Dr. M. Collinson, B.M.N.H., "Floristic Changes During the Tertiary in southern England."

P. Crane, University of Reading, "Paleocene Laurels."

R.N.L.B. Hubbard and M.C. Boulter, N.E. London Polytechnic, "Objective Palaeoecological and Biostratigraphic Interpretation of Tertiary Palynological Data by Multivariate Statistical Analysis."

# PALAEOBOTANISTS ON T.V.

Palaeobotany is often considered a small and highly specialized field that is of little concern to the general public. The opposite view was apparently held by two television networks which showed work from our discipline in recent American television programmes.

Erwin L. Zodrow of the College of Cape Breton, Sydney, Nova Scotia, Canada gave five lectures on the educational television series

"University of the Air" under the title "Fossil Ferns of Sydney Coal Field, Nova Scotia". Pteridophylls were discussed and their value for stratigraphy, palaeogeography and plate tectonics, and the evaluation of coal resources were mentioned. The series was produced by ATV and transmitted by the CTV television network during late 1978 on a nation-wide basis in Canada. The series was repeated in 1979.

Karl J. Niklas was interviewed on the evening news of CBS in the spring of 1978. The interview dealt with the discovery of leaves which are 20 million years old and are virtually unaltered in their chemistry. The interviewer was interested in the natural mechanism of such excellent preservation and the potential of the method for the food industry. The one minute interview shown had been edited from a discussion that had been filmed for about an hour.

H. Pfefferkorn, Pennsylvania, USA.



## NOTES ON Hirmerella

Hirmerella is an ovuliferous organ of a plant which produced famous Classopollis pollen grains. Though these show some angiospermous characters the plant itself is assigned to the conifers because female organs have priority in the conventional seed plant classification. Hirmerella is interpreted as being a coniferous seed cone with persistent bracts and winged ovuliferous scales which are shed and partake in seed dispersal. Harris's "The Yorkshire Jurassic Flora. V. Coniferales" (B.M.N.H., 1979) has described two megaspore membranes within the ovuliferous scale. Recently I macerated a few winged ovuliferous organs from the Liassic of Poland collected by Dr. M.P. Doludenko with the kind assistance of Dr. M. Reymanowna. Inside the thick strongly cutinized outer wall I found a thin cuticle lining the locule. It shows elongate cells with sinuous walls. The locule contains two ovules adpressed to the wall. The integumental cuticle shows straight walled fusiform cells. Nucelli are large and free to the base, with vesigial beaks. No pollen grains were found in the nucellar beaks though many Classopollis grains stuck to the cuticles. The structure of the nucelli is easily separable from the enclosing double cuticle (the locule lining plus the integumental one) and the aspect of the latter reminds me of Caytonia fruits which I prepared a few years ago. And in fact the samaras of Hirmerella are rather fruits than coniferous seed scales. They are even more fruit-like than araucarian samaras with their "embedded" ovules. I dislike the idea of embedding. It is simpler to derive Hirmerella from bioovulate pteridospermous cupules. I suggest that evolutionary significance of Hirmerella is still to be learnt.

V. KRASSILOV, USSR.

## TERTIARY FLORAS OF TURKEY

Professor Dr. Hayrettin Kayacik is anxious to canvas palaeobotanists about the very rich browncoal floras being excavated in Turkey at the moment. Little work has been done either on the botany of these megafossils or on a systematic study of their stratigraphic relations, both of which aspects Professor Kayacik considers especially important. The use of modern machinery is exploiting the reserves at a rapid rate and so there is some urgency about his request. There are no megafossil workers in Turkey and Professor Kayacik invites an interest from overseas palaeobotanists. It is likely that laboratory accomodation and an assistant could be provided in Istanbul for this purpose. Any palaeobotanist with an interest in this problem and who is willing and able to spend several months in Turkey should write to Professor Kayacik, University of Istanbul, Faculty of Forestry, Institute of Forest Botany, Place Buyukdere, Istanbul, Turkey.

C. HILL, British Museum, Natural History.

## NEW PUBLICATIONS

### BIOLOGY INTERNATIONAL

IOP is a "section" within the International Union of Biological Sciences, and so the secretary receives regular communications from that body. The newsletter of IUBS has now been replaced by a glossy New Magazine entitled "Biology International". The first edition is dated June-July 1980 and is "to serve as a meaningful vehicle for the

dissemination of information and the exchange of ideas and experiences." The editor's note invites "all union members to contribute to "Biology International" with short and informative articles and points of view, on such topics as Recombinant DNA ..... Why don't we give them some palaeobotany too. Those who want IOP to run a journal may be particularly interested in contributing to this new IUBS venture. Write to IUBS Secretariat, 51 boulevard de Montmorency, 75016 Paris, France.

#### REVISION OF THE INDIAN SPECIES OF Glosspteris

This monography was published by the Birbal Sahni Institute during September 1980; it is jointly written by Dr. S. Chandra and Dr. K.R. Surange. There are 89 pages of text, 54 pages of line drawings, 24 pencil sketches and 23 photographic plates. Send US\$60 and money for postage to the Joint Editor J.S. Antal, Birbal Sahni Institute of Palaeobotany, 53 University Road, Post Box 106, Lucknow 226 007, India.

#### PALYNOSTRATIGRAPHIE ET PALÉOCLIMATOLOGIE DE L'EOCÈNE SUPÉRIEUR ET DE L'OLIGOCÈNE DU BASSIN DE PARIS

Dr J-J. Chateaufeuf's January 1980 thesis is now published by Division Editions et Ventes, BRGM - SGN - BP 6009, 45060 Orleans Cedex, France. Send them FF260 for a copy postage paid. The contents include Historique, Localisation et description du matériel étudié, Méthodes d'extraction et d'analyse utilisées, Description systématique; Palynostratigraphie de Bassin de Paris et Bassins de l'Europe occidentale, Evolution palynologique et milieu de dépôt, Essai de reconstitution paléoclimatique et Conclusions. There are 424 pages, 69 figures and 31 plates.

#### EVOLUTION/NATURGESCHICHTE HÖHERER PFLANZEN

The latest edition of Schriftenreihe für Geologische Wissenschaften edited by R. Daber and available from Akademie Verlag, Berlin 1080, Leipziger Strasse 3-4, DDR for 84M contains the following articles:

- DABER, R. Walther Gothan 1879-1954. Das Bild eines Menschen am Anfunserer Zeit.
- DABER, R. Zum Problem der Gabelwedelformen des Karbons und Perms.
- BARTHEL, M & HAUBOLD, H. Zur Gattung Callipteris Brongniart. Teil 1: Die Ausbildung Callipteris conferta (Sternberg) Zeiller im mitteleuropäische Rotliegende
- WENDEL, R. Callipteridium pteridium (Schlotheim) Zeiller im Typusgebiet Saaletrogs.
- STORCH, D. Sphenophyllum-Arten aus drei intramontanen Karbonbecken pflanzengeographische Besonderheiten im mitteleuropäischen.
- BARTHEL, M. Pecopteris-Arten E.F. von Schlotheims aus Typuslokalitäten in DDR.
- SETLÍK, J. Über ein Wedelstück von Neuropteris neuropteroides aus den flozfuhrenden Stefan-Schichten von Oslavany CSSR.
- OBRHEL, J. Über Distichophytum mucronatum.
- WOLF, L. Saganophycos sinus n.gen. et sp. eine Alga aus dem ? Oberviseé Walbrzyeh (Dolny Slask).
- HAUBOLD, H. Die biostratigraphische Gliederung des Rotliegenden (Permosiles) mittleren Thüringer Wald.
- JÄHNICHEN, H., MAI, D.H. & WALTHER, H. Blätter und Frucht von Cercidiphyllum mitteleuropäischen Tertiär.
- SÜSS, W. Ein Platanenholz aus dem Untereozän der Greifswalder Oie, Platanoxylon cohenii comb n.
- RÜFFLE, L. Merkmals-Enkapsis und Homologie-Kriterien bei älteren Angiosperms und ihrer Herkunft.

## CIRCULAR INFORMATIVA DA ALPP.

News of latinamerican palaeobotany is contained in their volume 2 number 2 newsletter printed in August 1980. There are items on an angiosperm meeting at Sao Paulo in August 1979, on IGCP project 42 - the Upper Palaeozoic of South America - which met in June 1980, and a full list of members with addresses. Write to ask for a copy from Instituto de Geociencias, Universidade de Sao Paulo, Cx Postal 20.899, Cep 01,000, Sao Paulo, SP, Brasil.

NEWS OF INDIVIDUALS

A. TRAVERSE is on sabbatical leave from November 15th 1980 until May 15th 1981. His address during that period is:  
c/o Dr K.J. Hsu, Geologisches Institut, E.T.H.-Zentrum,  
Sonneggstrasse 5, CH-8092 Zurich, Switzerland.

ROD GOULD has changed his permanent address to P.O. Box 396, North Adelaide, S.A.5006, Australia.

Contribution to this section of the IOP newsletter are falling in number. Through the stimulus of the A.A.S.P. newsletter's new series "Focus" IOP requests descriptions of work in progress at members' own laboratories. Here is a trial contribution:

M.C. BOULTER has recently moved to a new laboratory within the same institution. The new address and telephone number are:  
N.E. London Polytechnic, Maryland House, Manbey Park Road,  
London E15. telephone 01-590 7722 extension 4210.  
The new accomodation consists of a technician's room, a sitting room and a laboratory. Early in the new year two research assistants are expected to start work here on a new project to determine the palaeoecological significance of broken plant parts in the Palaeocene of the North Sea. We hope to be able to compare our quantitifed results with other evidence from megafossils, pollen, spores and sedimentology. The project is funded by three oil companies: Shell, Esso and British Petroleum. Work continues on the quantitative palynology of the Hampshire Basin, in which borehole samples for the Institute Geological Sciences are providing evidence for floristic and climatic change through the British Eocene.

BIBLIOGRAPHIES

## BIBLIOGRAFIAS PALEOBOTANICAS

This very useful work has been compiled by Reinhard Weber. It is an annotated catalogue of bibliographies and is due to the work done by the author from 1971 to 1980, in order to build a complete bibliographical documentation for all fields of palaeobotany. Write to the author for details: Reinhard Weber, Instituto de Geologia, U.N.A.M., Ciudad Universitaria, Mexico 20, D.F.

## PALAEOCENE &amp; EOCENE PALYNOLOGICAL LITERATURE

The 14th publication of Paleodata Banks, 101N. Avenida Carolina, Tucson, Arizona 85711 was available from October 1980. This contains 1,500 references with the usual indices. Write to the address above to find the cost of this edition.

## INTERNATIONAL BIBLIOGRAPHY OF PALAEOBOTANY

Dr. H. Pfefferkorn, Department of Geology D4, University of Pennsylvania, Philadelphia 19104, USA writes:

"I am glad to see that the idea of an International Bibliography of Paleobotany has been discussed (IOP newsletter 12 page 2). I am surprised that there are colleagues who do not feel the need for such a bibliography. I am further surprised that a "computerized data retrieval system" is considered feasible. Computerized systems are inherently error prone, expensive, and more time consuming than manual methods for single output operations. What is wrong with the very simple and inexpensive fast method of pasting contributions from authors on a sheet to be xeroxed? Let's do an international bibliography for 1980 and improve the service function and attractiveness of IOP. Why wait for the money for computers which we don't have?"

BOOK REVIEWS

THE FOSSIL HUNTERS in search of ancient plants. H.N. Andrews, 1980. Cornell University Press. 421pp. US\$28.50.

Henry Andrews writes well; he has travelled widely and is a well-known authority in the world of palaeobotanists. His new book is designed as a comprehensive history of palaeobotanical study up to his chosen cut-off date at twenty five years ago, which he has interpreted liberally. As well as avoiding comment on those still working, his choice allows him also to omit all palaeopalynology. His book title was probably very difficult to select, but fortunately he uses it broadly to include many of the 'handlers' of fossils such as Heer and Seward, as well as the 'hunters' and 'experimenters'. His story is laced with anecdotes and personal material with which he often successfully brings his characters to life. The book is well produced with only a minimum of small errors.

Relatively little space is given to the early days up to Llwyd and Woodward, who were concerned of course with more than plant fossils. This, including Scheuchzer and the rest of the eighteenth century up to von Schlotheim occupy only sixty pages.

Fuller treatment rightly begins with Sternberg and Brongniart about 1820. Henry provides compulsive reading on all the main characters, but he also goes out of his way to notice lesser but significant contributors such as Corda. The next hundred pages are devoted to palaeobotany in Britain from Witham to Scott and then the 'Age of Seward' which includes Tom Harris. He relates master and pupil whenever possible, and has unearthed numerous interesting and less obvious connections; his attitude is always sympathetic, without concealing failures. He rightly looks for introduction of techniques and for unusual industry.

In North America he records great respect for Lester Ward who wrote a previous history of the subject in 1885, and who was also equally successful in an unrelated sociological field. Although he hints at the curious environment of Dawson's work at McGill, he does not explain the amazing neglect of Dawson's Devonian discoveries for so many decades. He gives much greater credit to the merits of E.W. Berry than do many of his countrymen. Fortunately Henry introduces himself into the story quite naturally with a pleasant portrait, as he should do.

The chapter on the U.S.S.R. is thin apart from Krystofovich, but that presumably represents the true position. He gently relaxes his time rule for Natasha Snigirevskaya, recently the tireless secretary of the Leningrad Congress in 1975, but not for her contemporaries Meyen and



Krassilov. In the mid-European chapter there is not enough on Nemejc, an important contributor who was sadly isolated by non-scientific circumstances; Hirmer and Magdefrau do not appear at all, but they may have been classed as 'handlers' or teachers. The workers on amber are included but those on algae only briefly. Under France, Henry presses the perseverance and general importance of Bernard Renault, who has almost certainly not had adequate recognition abroad. There is a good section on Birbal Sahni, but nothing directly from Japan, Australia or South America.

Of course at times Henry Andrews' story appears idiosyncratic in his support for various names and brevity with others, but that goes with 'colour' and well expressed opinions. In reading, one is frequently sad at a sudden change to a new subject, and there never could be enough of the well produced portraits.

In general Henry seems content to take most of his characters separately, and not to evaluate or criticise trends, fashions or schools. He is rather self consciously botanical (Fossil Botany), and not stratigraphical (an approach not inferior perhaps but definitely separate and slightly alien) as seen in discussion of Kidson or Walter Bell.

This third book of Andrews is marked by his same easy style so evident in the other two; it is a book one can happily read from cover to cover. His research for several years for this book has served palaeobotany well, and one hopes that at least librarians everywhere will hold this helpful and attractive book.

N.F. HUGHES, Cambridge, England.

CLIMATES THROUGHOUT GEOLOGICAL TIME. L.A. Frakes, 1979. Elsevier Scientific Publishing Company, Amsterdam. 310pp US\$58.50.

This book documents the climatic history of the earth from the Precambrian to the Recent. A relatively short first chapter covers the nature and periodicity of modern climates and introduces the reader to the discipline of climatology, its basic data sources and their interpretation. The final chapter discusses the evolution and genesis of modern and palaeoclimates considering the causal factors which may be involved in generating world-wide climatic change.

The intermediate seven chapters are devoted to the documentation of worldwide climatic changes in a stratigraphic sequence with chapters covering the early Precambrian, late Precambrian, non-glacial Palaeozoic, glacial Palaeozoic, Mesozoic, Palaeogene and Neogene. All chapters are sub-divided into coherent units which are listed in the contents. This, combined with an effective index, makes the text very useful as a primary data source. In addition, short summaries are provided at the end of various sections and these serve both as informative abstracts and helpful discussions. A subsidiary index of cited authors will be useful to those acquainted with the subject. The text is served by a comprehensive up to date bibliography of some 600 references. Inevitably with a subject such as this there are already highly important works such as those of Bucharadt (Nature, 1978, 275) on North Sea isotope palaeotemperatures which are too recent to be included in the book. Such is not a criticism of the book but serves to emphasize its function in providing a 'point in time' summary of this rapidly advancing field.

I chose to check the ease of use of this book with a search for information on the timing of the onset of Cenozoic glaciation in the Antarctic and Arctic. The latter is arrived at easily through the index: Glaciation - Arctic. The development of continental ice in Alaska can be found under: Glaciation in Alaska, in the contents list. The onset of Antarctic sea level ice by 'later Oligocene' is located under the

contents heading - Growth of the Antarctic ice sheet. However the date of 26 m.y. ago is given much earlier in the Palaeogene chapter under 'Temperatures from Isotopes'. The implications of this are clear. The best value can be gained from this book by reading the entire relevant chapter rather than by dipping in at various points. Nevertheless the book seems to fulfill the latter function adequately. The relevance of palaeobotanical studies to palaeoclimatology is indicated by an index entry - Plants - and by 'Climates from fossil landplants' in the Palaeogene chapter contents. The latter devotes three pages to Tertiary climates as indicated by floras, covering the standard leaf morphology studies, climate curves and tropical and sub-tropical implications drawn from modern equivalents of various fossil fruit and seed floras. Here, mention is made of the London Clay flora without bibliographic reference to any of the monographs on the subject. This is one of the few major palaeobotanical omissions in the bibliography.

One of the recurring palaeobotanical subjects in the book is that of fossil plants growing at high latitudes, apparently unadapted for the period of enforced winter dormancy during the six months of winter nights. This is considered by the author to be one of the major unsolved problems caused by the palaeobotanical evidence. Further considerations given to palaeobotany include floral provinces in the late Carboniferous/Permian and Mesozoic and climatic implications of Mesozoic plants. Palynological work finds no place in the index or contents and as far as I can see is treated in any detail only in the Tertiary floras section. Dendrochronology is considered with respect to demonstrating seasonality at various periods and with reference to detailed changes over the last 5,000 years.

Inevitably I have been prompted to compare this book with that of Pearson - 1978 - Climate and Evolution (see my review in IOP newsletter 10). This comparison emphasizes the enormity of the field the authors have tried to cover in that the two books are rather strikingly different. The most obvious immediate difference is their respective coverage of the different periods of earth history. Roughly 3/5th of Pearson's book is devoted to the post-Pliocene whereas 4/5th of Frake's book is concerned with the pre-Pliocene. Pearson covers Quaternary vegetation changes and pollen sequences etc. in some detail, whereas Frakes scarcely mentions them. Both authors give similar coverage to Tertiary floras and their climatic implications. Pearson makes inferences from generic lists of fossil plants and their modern taxonomic affinities. Frakes comments on the pitfalls of drawing inappropriate analyses with modern forms in floras, and comments also on the lack of stratigraphic precision which affects the detailed interpretations of the climatic curves. Both authors figure different, but equally appropriate, graphical demonstrations of the discrepancies between climatic curves which have been produced from floristic data. Pearson's book contains considerably more coverage of palynological evidence including the Quaternary studies and van der Hammen's Monocolpites periodicity. Pearson also includes brief comment on the rise of the land plants, a topic lacking in Frake's book except incidentally in a brief treatment of early coals.

In summary, the two books show very different aspects of palaeoclimates. Pearson's book specialises in the fluctuations of the climate over the last 15,000 years and their causes. Frake's book specializes in the documentation of, and evidence for, climatic change throughout earth history. Within this framework the book is strongly biased towards study of various glaciations and their causes, and especially in the Cenozoic to studies from the southern hemisphere. In places this latter

can be a little misleading and aggravating for the northern hemisphere reader but this is a small complaint about an otherwise well balanced account. The difference between the two books is perhaps most aptly summarized by the bibliographies: Pearson has about 750 references, Frakes about 600 - of these only around 60 are common to the two texts. Both books should be used in advanced teaching and by those interested in palaeoclimatology as a peripheral research topic. They both claim to be of great value to all involved in historical geology. And Frakes is now available in a cheaper paper cover.

M.E. COLLINSON, British Museum Natural History, London.

**DINOFLAGELLATE CYSTS AND ACRITARCHS FROM THE EOCENE OF SOUTHERN ENGLAND**  
J.P. Bujak, C. Downie, G.L. Eaton & G.L. Williams, 1980. Special Papers in Palaeontology, 24, 100pp., 24 text-figs., 22 plates, £15.00

Cet ouvrage constitue la compilation et la synthèse stratigraphique des travaux de thèses de l'Université de Sheffield, portant sur l'étude des Dinokystes du London Clay, des Bracklesham Beds et des Barton Beds dans le Sud de l'Angleterre.

Ce mémoire très important pour le nombre des zones définies (13), des nouveaux genres (5), et espèces décrites (2), ou des taxons émendés représente un document de base très utile pour le paléontologiste.

Il comprend quatre chapitres consacrés, à la stratigraphie des séries étudiées, à la zonation générale, à la taxonomie des kystes de Dinoflagellés de l'Eocène inférieur et moyen, et enfin à celle de l'Eocène supérieur (Barton Beds).

Le premier chapitre reprend la lithostratigraphie des coupes et des localités étudiées dans l'île de Wight (Whitecliffe et Alum Bay) dans le Bassin du Hampshire (Studland, Barton), et dans le Bassin de Londres. Le chapitre zonation synthétise les découpages établis par les différents auteurs et définit le contenu et les limites de chaque "assemblage zone". La partie taxonomique très détaillée, est présentée dans l'ordre alphabétique de noms de genres. Elle tient compte de la terminologie utilisée par divers auteurs depuis Downie & Sargeant (1966) jusqu'à Evitt et al (1977). Les nouveaux genres définis sont Cerebrocysta, Dapsilidinium, Hemisphaeridium, Lentinia, Paucisphaeridium, Quadrina.

Cette partie est abondamment illustrée par 22 planches photographiques et de nombreuses figures dans le texte, se rapportant à la morphologie des processus ou de l'archéopyle, aux mensurations et à la paratabulation du kyste.

La bibliographie, très documentée est complétée par une liste récapitulative des genres et des espèces cités dans l'ouvrage.

Ce travail représente donc un outil de choix pour les palynologistes et les stratigraphes travaillant sur l'Eocène des bassins nordiques.  
J.-J. CHATEAUNEUF, Orleans, France.

**MAZON CREEK FOSSILS** Ed. M.H. Nitecki, 1979. Academic Press, London, \$29.50.

The Mazon Creek fossils are preserved in siderite concretions in the Middle Pennsylvanian Francis Creek Shale which outcrops mainly in north eastern Illinois. As a whole the fauna and flora arguably represent the most spectacular known example of a 'Lagerstat'. The fossils are not as well preserved as those of the more celebrated Middle Cambrian Burgess Shale, but 'soft' organisms occur in abundance and their derivation from a variety of facies including non-marine, marginal-marine and open sea, ensures a remarkable diversity of animals (over 320 species) and plants (over 350 species).

Although the importance of the Mazon Creek biotas has long been recognized (they have been the subject of over 200 scientific papers), this is the first significant collection of papers covering the variety and occurrence of the fossils to have been assembled in a single volume.

The 18 contributions, dealing with the general aspects of the Mazon Creek fossils, palaeobotany, and invertebrate and vertebrate palaeontology, were prepared for a special symposium held in Ann Arbor, Michigan on May 1st 1978. They are published as a 'rapid manuscript reproduction' direct from typescript, which explains the speedy appearance and relatively modest price of such a specialist volume. A review of the Mazon Creek fossils was not the specific aim of the symposium, and a number of purely taxonomic papers are included. These are of intrinsic interest however due to the exceptional preservation. Reviews of some groups are published in this volume, including the flora (Horowitz), and Schram sets the Mazon Creek fossils in context by relating them to other Carboniferous localities and shows that they were not atypical. They merely provide a clearer picture than other occurrences of an ecological continuum in space and time. In the preface the editor states that he 'hopes to prepare a second volume that will provide reprints of some of the more significant previously published papers on Mazon Creek and will include an up-to-date faunal list and bibliography'. We hope he does; the significance of the Mazon Creek fossils merits a wide recognition. D.E.G. BRIGGS & B.A. THOMAS, London. (with thanks to Earth Science Reviews)

#### BOOK REVIEWING APATHY

All book reviews that have appeared in the IOP newsletter have been solicited by the secretary. In an international organization this means either long delay or great expense if review copies are sent to agreeable reviewers far away from London. So many of the reviews appearing in the newsletter have a British flavour. It would be greatly appreciated if palaeobotanists away from the British Isles will send their own reviews of any books or articles at all relevant to our interests. If anyone would like to obtain a review copy with a formal IOP letter of request, please write to the IOP secretary for help. It is cheaper to send an air mail letter than a heavy book. International reviews must be healthier than a narrow one-city-based critique.