



IOP NEWSLETTER 65

DECEMBER 1998

CONTENTS

EDITORIAL.....	2
NEWS OF A RECENT MEETING.....	2
A NEW MUSEUM IN BAYREUTH.....	2
FORTHCOMING MEETINGS.....	3
THE INTERNET.....	3
THE PALEOBIOLOGY FUND.....	4
N.W. AMERICAN UPLANDS.....	4
THE FLORIDA MUSEUM OF NATURAL HISTORY..	4
PALAEOBOTANY IN MELBOURNE.....	5
NEWS FROM GERMANY.....	6
NEWS OF INDIVIDUALS.....	6
OBITUARY.....	7
BOOK REVIEW.....	7

PLEASE MAIL NEWS AND CORRESPONDENCE
TO YOUR REGIONAL REPRESENTATIVE OR
TO THE SECRETARY FOR THE NEXT
NEWSLETTER 66.

The views expressed in the newsletter are those of its
correspondents and do not necessarily reflect the
policy of IOP.

President: J. Galtier (*France*)

Vice Presidents: J. Anderson (*S. Africa*) - A. Herman (*Russia*) - K. Uemura (*Japan*)

Secretary: Prof. M. C. Boulter

University of East London - Romford Road - London E15 4LZ - England

EDITORIAL

More than ten years ago there was the famous "Heathrow" meeting. A British research council, worried about declining standards in the country's palaeontology, and fearing encroaching cladograms in public museums, flew in a gang of specialist American critics to offer some explanations and advice. Money was limited so the meeting took place at the airport (saving travel but doubtless costing high hotel bills).

The good news was that "stamp collecting" specialisation was thought to be too dominating, and given limited support in favour of more application. The bad news was that the age of quantifying quality (a conflict in terms if ever there was one), with the intrusion of institutional and individual league tables, had begun.

Now it is a global phenomenon, supported by governments, and a fashion that shows no sign of fading out. The energy taken engaging in research assessment exercises, quality assurance programmes, and the like, is surely making students and knowledge miss out from research.

What can we do about all this? One way that may save time is to join forces with colleagues to make joint proposals for new projects; already this happens often as can be seen by the number of multi-authored papers. Even better, these peers may come from other disciplines with projects to break through traditional paradigms. Also, there is more research funding from international agencies, outside the view of national bureaucrats, saving all the hassle.

It would be wonderful if the IOP could play some role in bringing such groups together internationally. That kind of cooperation might impress funding agencies and help simplify the work involved. Please e-mail suggestions to the IOP secretary: boulter@uel.ac.uk

[I forgot to mention: recently the Royal Society asked me to sit on their ICSU Review Committee to "critically review the competence within the IOP". I felt scared, unaware that we share the initials of the UK's Institute of Physics. Challenging bedfellows.]

M. BOULTER, London

NEWS OF A RECENT MEETING

9e COLLOQUE DE L'ORGANISATION FRANCAISE DE PALEOBOTANIQUE, Liège, 4-5 September 1998

Eight years ago the francophone palaeobotanists met in the Université de Liège venerable building, Place du Vingt Août. This time our meeting was held at the Sart Tilman campus where our hosts of the laboratory of

Paléobotanique, Paléopalynologie and Micro-paléontologie recently moved in new and enviable facilities. The meeting was attended by 26 palaeobotanists and palynologists from Belgium, France, Spain, Germany and Chile.

As an introduction to the meeting, Dr. P. Steemans presented an attractive review on spores and cryptospores as indirect evidence of the appearance of vegetation on land. A wide variety of themes was addressed in additional 15 papers ranging from new Devonian plant assemblages to Mesozoic and late Tertiary megafossils and microfossils. Other papers concerned plant development, the use of morphometric methods for leaf compression identification or palynostratigraphical zonation. As always the lively discussions continued during the coffee breaks.

The excursion in the Hautes-Fagnes was masterly introduced by the conference of Prof. M. Streel on pollen analysis and its bearing on geomorphology and archeology of the Hautes-Fagnes peat-bog area. During the afternoon, and despite a very changing weather alternating rapidly sun, light rain and wind, we enjoyed a tonic two hours walk in this immense and fascinating peat-bog area, under the enthusiastic guidance of Maurice Streel.

Our colleagues in Liège have to be congratulated on this excellently organised and very successful meeting (where traditional Belgian menu and beer have been also most appreciated by everybody!). Next year we plan to move far to the south, the OFP meeting will be probably held in Zaragoza, Spain.

J. GALTIER, Montpellier

A NEW MUSEUM IN BAYREUTH

On the 17th of July this year there was an opening ceremony for a new museum in Bayreuth. The Urwelt-Museum Oberfranken (Oberfränkisches Erdgeschichtliches Museum Bayreuth) contains many palaeozoological objects from the surrounding area (mainly Jurassic and Keuper). There is also a fine exhibition of beautiful Rhaeto-Jurassic plant compressions collected and prepared by Sepp and Traute Hauptmann.

U. BERTRAM, Germany

FORTHCOMING MEETINGS

THE 16th INTERNATIONAL BOTANICAL CONGRESS. St. Louis, Missouri, USA, August 1-7, 1998.

Welcome to IBC in the United States. The 16th International Botanical Congress will be held at the Convention Center in St. Louis, Missouri, USA, August 1-7, 1998. The program will consist of invited symposium lectures and contributed posters. Details of the program, location, and registration procedures, are available at <http://www.ibc99.org/> and also from:

Secretary General, XVI IBC
c/o Missouri Botanical Garden
P.O. Box 299
St. Louis, MO 63166-0299
U.S.A.
Telephone: 01-314-577-5175
Fax: 01-314-577-9589
E-mail: ibc16@mobot.org

Paleobotany will be well represented at IBC. A paleobotanical dinner and IOP business meeting will be held Tuesday evening. Paleobotanically oriented symposia currently planned include:

- Early land plants: evolution and diversification;
- Paleobotanical approaches to paleoclimate;
- Fossil history, morphology, and phylogeny of seed plants;
- Archaeopteris, the world's first forest tree: biology, ecology, and systematics of a Late Devonian progymnosperm;
- Evolution and diversification of the Lycopods;
- Current perspectives on basal angiosperms: structural and palaeobotanical evidence;
- Newest ideas about the oldest plants; Geological time series for modern angiosperm groups;
- Structure, development and evolution of the plant shoot;
- Cretaceous floras: evidence for patterns of angiosperm diversification;
- Euro-American floristic similarities through the Cenophytic; and Pteridophyte biogeography.

Abstracts for symposia and posters are due April 1, 1999. Registration fees for the conference (if paid before March 1, 1999) are \$300 (Scientific/developed countries), \$200 (Scientific/developing), \$100 (Scientific/Student), and \$100 (Companion).

Travel expense fellowships are available on a competitive basis, especially for registrants from developing countries and for graduate students and recent graduates (degree received after 1/1/95). Applications for the limited number of fellowships will be processed beginning 1 February 1998. Guidelines for fellowship applications are as follows:

- 1.) A brief letter of application, including e-mail and mailing address, telephone and fax numbers.
- 2) A copy of CV, including a list of recent publications and field experience.
- 3) An indication of the approximate amount of support needed, and the amount of matching funds the applicant can contribute from other sources.
- 4) A brief abstract (187-word maximum) of the work the applicant will present at the XVI IBC (You may use the Abstract Form provided on the web site, but it should be printed out and mailed with the other requested items),
- 5) For student applicants, a letter of recommendation signed by their academic advisor is required. For non-students, a letter of support from an established/senior scientist from the country of origin may be advantageous. Recent graduates should submit proof that degree was conferred after 1/1/95.

We hope to see you in St. Louis.

P. CRANE, S. MANCHESTER, USA

4th SYMPOSIUM OF AFRICAN PALYNOLOGY, Tunisia, April 26 - 30th 1999

This is organised by the International Association of African Palynology, Dr Emile Roche, Universite de Liege-Paleontologie, Sart Tilman B18/P40, B-4000 Liege 1, Belgium.

The symposium is preceded by a twelve day field trip touring most of the country.

THE INTERNET

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES

A new web site for our parent body is available at <http://www.iubs.org> to give an exchange of information and ideas. You can use it to connect to numerous biological and environmental internet facilities as well as to the UNESCO sponsored Diversitas programme.

GLOBAL PLOTTER

This interactive facility is at <http://www.biodiversity.org.uk> (if that fails use the alias address <http://ibs.uel.ac.uk/ibs>). Then click on "Presentations" then "Global Plotter" then "Select Databases": you are given options of data on the IOP server, remote servers, or you can follow a procedure to add your own database. The interactive facility enables you to plot any data with latitude and longitude coordinates on a world map. You can zoom in anywhere to within 1km and there are features for political boundaries, lakes, rivers and palaeogeographic maps.

You can also analyse the global diversity of the data you select, and print out the results as maps.

Publicly available databases include the Plant Fossil Record, Thorne's angiosperm family biogeography, fish, volcanoes, cities, and soccer World Cup venues.

Global Plotter is the work of Dilshat Hewzulla, from Urumchi, China.

THE FOSSIL RECORD 2

This is also the work of Dilshat Hewzulla and is available at the same url addresses, then click on "Presentations" and "Fossil Record 2".

You can select any plant or animal family or order and plot the diversity through time, the originations, and the extinctions of any group. Of course, you can print these lists and curves. The data are from the 1993 Chapman and Hall compilation edited by Mike Benton.

THE PALEOBIOLOGY FUND

Many countries have found the recent sound of privatisations of state industry unusual and difficult, but we are slowly accepting it and even understanding why and how a gas company sells electricity. But privatising the funding of postgraduate palaeontology students is more difficult to follow.

Yet this is precisely what The Paleobiology Fund is doing, and you can get full information from the fund at 6809 Crossman Street, Annandale, VA 22003.

The fund also encourages enthusiast to explore and share their ideas about fossils. Their newsletter is called *Changing Times* and contains articles about the fund, evolution, and of course, dinosaurs.

N.W. AMERICAN UPLANDS: A NEW PROJECT ON CENOZOIC PLANTS

Kate Gregory (Lamont Doherty) and Jack Wolfe (U. Arizona) embarked on a project funded by NSF to analyze late Paleocene-early Eocene floras from southern British Columbia and adjacent Washington. These analyses are to provide paleoaltitudinal estimates for the interior region through this time interval to constrain geophysical models. In the last two decades, the development of new geophysical theory suggests that a terrain such as interior southern British Columbia, because of pressure built up by the North American Plate pushing westward, underwent (1) crustal thickening with concomitant altitudinal increase, (2) melting of the lower part of the crust and consequent movement upward of intrusives, some of which also reached the surface as

extrusive volcanics, (3) with increased crustal thickening, the "root" of the pile totally melts and drops downward, thus releasing the upper part of the crust to "bounce" to an even higher altitude and even greater extrusions, and (4) the initiation of crustal extension (shown by many normal faults that tend to create grabens) and consequent decrease in altitude. Gregory and Wolfe collected fossil floras that appear to represent stages 1 through 3, and the stage 4 floras represent such well known floras as the Republic of northeastern Washington and the Princeton of British Columbia. Preliminary analyses also suggest that the flora of these uplands witnessed a very rapid diversification of temperate ("arcto-tertiary") lineages; the older stage 1 flora largely contains archaic lineages of Taxodiaceae and trochodendroids, while the stage 4 flora, which has diversity a magnitude greater, contains a flora of much more modern aspect (e.g., Pinaceae, Fagaceae, Ulmaceae, Rosaceae, Tiliaceae). This change occurred in perhaps only 3-4 Ma.

J. A. WOLFE, University of Arizona, USA

THE FLORIDA MUSEUM OF NATURAL HISTORY

The paleobotany laboratory at the Florida Museum of Natural History has a young and active program in paleobotanical research. It started 8 years ago under the direction of Dr. David Dilcher and Dr. Steve Manchester. The Laboratory produces research on paleobotany addressing diverse questions as plant phylogeny, paleogeography, biostratigraphy, and paleoclimate. It also houses an important fossil collection that includes approximately 105,000 specimens, and also includes the John W. Hall paleobotanical collection (approximately 20,000 specimens) on a long-term loan from the University of Minnesota. The collection (the largest in the southeastern United States) has a particular focus on Angiosperm fruits, leaves, flowers, and wood from Cretaceous of the US western interior and southeastern North America, and Paleogene of southeastern North America and the US Pacific northwest. The collection also contains more than 3000 holotypes cited in approximately 115 publications.

Currently the laboratory personnel is composed of 2 curators David Dilcher and Steve Manchester; one Collection Manager, David Jarzen; one full-time technician Terry Lott; one Postdoc. Michael Wiemann; and five Ph.D. students (Victor Call, Carlos Jaramillo, Amy MacClain, Hongshan Wang, and Xing Wang). Throughout the year we are usually visited by numerous researchers from diverse countries like Brazil, India, China, Germany, Netherlands, Chile, Russia, England,

Czech Republic and from other states of the USA. David Dilcher is interested in angiosperm evolution, especially the origin of flowers and the reproductive biology of the first flowering plants, the radiation of angiosperms during the Tertiary, and using paleobotany to infer paleoclimate. Steve Manchester is interested in angiosperm systematic of Paleogene floras from North America, and its biogeographical relationships with eastern Asia. David Jarzen is interested mainly in palynology of Australia and other southern hemisphere lands. His research centers on the evolution of angiosperms, and most recently completed a major work on the history of the Proteaceae with Dr. Mary Dettmann (Brisbane, Australia). Michael Wiemann focuses his work on using wood anatomy to infer paleoclimate. The Ph. students have a wide range of interests from evolution of winged seed dispersal in Angiosperms (V. Call), palynology of Paleogene deposits from North Dakota (A. MacClain), early Angiosperm evolution (X. Wang), and Cretaceous angiosperms of the Dakota formation (H. Wang).

I (Carlos Jaramillo) am also a Ph.D. student very close to finishing my degree, my project combines palynomorphs and palynofacies data of middle Paleocene-Eocene strata in central Colombia to improve the existent biostratigraphic zonation for the area, and propose a sequence stratigraphic framework for these oil-rich sediments. The pollen/spores taxonomic data also are used to understand patterns of plant diversity across the Eocene Thermal-Maximum in tropical areas.

If you wish more information about our laboratory, please visit us at our home page: <http://www.flmnh.ufl.edu/natsci/paleobotany/paleobotany.htm>

C. JARAMILLO, Florida, USA

PALAEOBOTANY IN MELBOURNE

There are currently two main groups of macrofloral palaeobotanists in Melbourne, continuing a tradition that includes Isabel Cookson and Jack Douglas. The University of Melbourne has been a 'traditional' base of macrofloral palaeobotany, and work on Mesozoic and Tertiary floras continues with Andrew Drinnan and Steve McLoughlin and several students contributing publications and attracting substantial funding. Since 1995, however, a research group led by David Greenwood has also been active at Victoria University of Technology, an institution that is only 8 years old (but originating from much older institutions). David Greenwood, Anthony Vadala (Univ. of Melbourne) and Jack Douglas are currently compiling a review of the Victorian Tertiary macrofloral record. The Museum of

Victoria is currently having a new building constructed, and local palaeobotanists have been consulted on the use of plant macrofossils in their new exhibits.

Recent conferences in Australia have highlighted the changing awareness of the value palaeobotany has for neobotany. For example, in the northern Australian tropical city of Cairns in April, a joint conference organised by the Smithsonian Tropical Research Institute (Panama) and the Co-operative Research Centre for Tropical Rainforest Ecology and Management, the University of Queensland, and James Cook University, had as its theme "Tropical rainforests: past and future". Several delegates (P. Colinvaux; J. Flenley; A. P. Kershaw *et al.*; Greenwood and Christophel) gave papers on the Cenozoic history of tropical rainforests based on either pollen or macrofloral records, attempting to integrate ideas on the interplay between processes at differing temporal scales (ecological and geological time), and concepts of communities as stochastic entities or individualistic associations of taxa. Greenwood and Christophel highlighted the extent to which significant endemic taxa restricted to the Australian wet tropics world heritage area in north-eastern Queensland were widespread in southern Australia in the Tertiary, particularly during the Early to Middle Eocene and Early Miocene warm intervals, whereas these Paleogene forests were non-analogous to the modern Australian tropical rainforests. Proceedings of the conference are planned to be published as a book. In September at the conference 'Monocots II: Second International Conference on the Comparative Biology of the Monocotyledons' in Sydney, two papers discussed the monocot fossil record, with one paper highlighting the problems associated with identifying monocots from often poorly preserved leaf remains (Gandolfo, Nixon, and Crepet), and the other noting that the Australian monocot fossil record while poor, was contributing to an understanding of phytogeography (Greenwood and Conran). Both papers generated significant discussion in question time and over coffee, particularly amongst a 'palaeo-centric' group (Richard Bateman, Andrew Drinnan, David Greenwood, and Madeline Harley amongst others). Proceedings of the conference are to be published in a special issue of Australian Systematic Botany (CSIRO).

Palaeobotanical research at Victoria University of Technology received a significant boost for 1998-2000 as David Greenwood and Scott Wing (Smithsonian Institution) received funding for a comparison of the palaeobotanical records of Paleogene climate for south-eastern Australia and western North America from the Australian Research Council. It is anticipated that initial findings of their research will be presented at the 'Early Paleogene Warm Climates and Biosphere Dynamics' meeting to be held at Göteborg in Sweden in June 1999.

Field work by the Victoria University group and Andrew Rowett (South Australian Geological Survey) in 1998 included a joint trip to the Miocene Stuart Creek macroflora, part of a continuing survey of the Tertiary silicified leaf floras near Lake Eyre, in central Australia. Richard Barnes from the University of Tasmania accompanied the group, and has submitted manuscripts on Cunoniaceae leaf remains from Stuart Creek. These floras are providing evidence that central Australia through the Tertiary was vegetated by a mosaic of plant communities, including 'rainforest' as gallery forests in the wetter interfluvies, and dry-season deciduous forests and sclerophyllous forests, the latter including archetypal Australian genera such as *Banksia*, *Dianella* (a monocot), and *Eucalyptus*. New initiatives include student projects on the Early Eocene Hotham Heights macroflora, in south-eastern Australia's 'high country', and a palynostratigraphic reappraisal of Tertiary macrofloras in collaboration with Alan Partridge (LaTrobe University).

Palaeobotany is alive and thriving in Melbourne.

D. R. GREENWOOD, Melbourne, Australia.
DavidGreenwood@VUT.edu.au

NEWS FROM GERMANY

The large bi-annual congress of the German Botanical Society (Deutsche Botanische Gesellschaft) and the Society for Applied Botany (Vereinigung für Angewandte Botanik) was held in Bremen from August 30th to September 6th, 1998. Although most contributions focused molecular botany and phytopathology, palaeobotanists were requested to participate. One of the keynote lectures was by Thomas N. Taylor who talked about the role of fungi in early terrestrial and modern ecosystems. In addition there was a special palaeobotany symposium that included six speakers covering a wide range of topic ranging from plant reproduction in the Early Devonian to Pleistocene vegetation and climate development. This symposium was very attended (approx. 80-100 non-palaeobotanists) and responses were very positive.

The annual meeting of the Arbeitskreis für Palaeobotanik und Palynologie was held as part of the 150th anniversary meeting of the Deutsche Geologische Gesellschaft in Berlin (Geo-Berlin 98) from October 6-9, 1998. Two special symposia were devoted to palaeobotany and palynology and several contributions were presented in other sessions.

One of the keynote lectures was given by Volker Mosbrugger (Tübingen) on the natural dynamics of climate systems. One of the excursions focused on

palaeobotanical themes. Next year the annual Arbeitskreis meeting will be held in Tübingen.

H. KERP, Germany

NEWS OF INDIVIDUALS

EDIE TAYLOR writes "If you would like a set of our reprints, please let me know via e-mail or by letter and I will send them (see address and email below). We also have reprints of some of Ted Delevoryas' papers, so again let me know if you would like a set of these. Finally, our telephone area code changed this fall and the old one will no longer work. See the new numbers below. Thanks!

Edie Taylor

Department of Ecology and Evolutionary Biology
 University of Kansas-Haworth Hall

Lawrence, KS 66045-2106 USA

ELT (785) 864-3621;

TNT (785) 864-3625;

FAX (785) 864-5321

etaylor@ukans.edu"

KLAUS-PETER KELBER received the prestigious Von Zittel Medal of the Palaeontologische Gesellschaft in recognition of his palaeobotanical work. This award has been instituted for outstanding contributions to palaeontology by "amateurs". Mr. Kelber is employed as a photographer/technician in the Mineralogical Institute in Würzburg. He specialized on Triassic floras and published a very nice book *Keuper floras*. Many will also know him as the webmaster of the "Links for Palaeobotanists" site:

(<http://uni.wuerzburg.de/mineralogie/palbot1.html>). In recognition of his work he also received a Teichmueller Stipend from the Deutsche Geologische Gesellschaft.

MICHAEL KRINGS obtained his Ph.D. at the University of Münster earlier this year on a thesis on cuticular analysis of Stephanian pteridosperms from the French Massif Central. He recently received a Feodor Lynen Stipend from the Alexander von Humboldt Foundation to work with Thomas N. Taylor in Lawrence (KS) for one year. He will move to Kansas in January 1999.

VERONIQUE DAVIERO obtained her Ph.D. in Montpellier and later worked in Lyon, started on October 1st, 1998 with a one year post-doc in Münster. She received a Marie Curie Stipend from the European Community and will work on the computer modelling of Rhynie Chert plants in cooperation with CIRAD (Montpellier).

SERGEI NAUGOLNYKH from the Palaeobotany Laboratory of the Russian Academy of Sciences in Moscow is in Münster for three months. He arrived on October 1st, 1998 and he will work on Permian floras with Hans Kerp and other people of the Münster palaeobotany group.

JOAN WATSON writes: "Joan Watson is still in serious dispute with Manchester University. In April 1997, despite holding the title of Reader in Palaeobotany (and a D.Sc.) since 1992, she was told that she can no longer demonstrate that she is above average for a Lecturer.

"In October 1997 her salary was reduced to the increment level she first reached in 1980. Her formal appeal against this decision failed in September 1997 and the University have since denied her Reader status in a document to an Industrial Tribunal. A Manchester University Grievance Procedure, underway since April 1998, has now resulted in a settlement offer which upholds the April 1997 decision, would leave her thousands of pounds out of pocket and includes a gagging clause.

"As further background: she is also being denied proper sabbatical leave after teaching for 10 years since her last leave and fell seriously ill early this year, leading to another major operation. Despite everything, her Wealden research is flourishing in collaboration with Ken Alvin and Ph.D. students Susie Lydon and Helen Cusack. A sizeable monograph on the Triassic Chinle conifers with Sid Ash and James Beckett (Ph.D. 1998) is well advanced.

"Several senior IOP colleagues have already written letters on her behalf but any further formal supporting letters (NOT e-mail) indicating the quality of her research, which could be used as evidence to an Industrial Tribunal, would be greatly appreciated. Address: Dept. of Geology, Williamson Building, The University, Manchester M13 9PL. Informal E-mails would cheer her up: jwatson@fs1.ge.man.ac.uk"

ULRIKE BERTRAM has a new address:

Ökologisch-Botanischer Garten der Universität,
95440 Bayreuth, Germany. phone: 0921 - 5529-74 e-mail: ulrike.bertram@uni-bayreuth.de

A correction from **HOWARD E. SCHORN**. In the last issue of the newsletter the obituary for Professor Axelrod is credited to Bruce Tiffney. This obituary was written by Professor Jere H. Lipps, Department of Integrative Biology, University of California, Berkeley and was originally put on the Museum of Paleontology website.

OBITUARY

ARTHUR H. BLICKLE 1911 - 1998

Art Bickle died unexpectedly at his home in Albany, Ohio, April 4, 1998. He received his undergraduate degree at Marietta College and his Ph.D. at the University of Cincinnati, where he studied under John H. Hoskins, and was an office mate of Aureal T. Cross. In 1940 he joined the Department of Botany at Ohio University, and with the exception of military service in the U.S. Navy during World War II, he remained at

Ohio University until his retirement in 1980. Bickle was a well-beloved teacher and authority on both living and fossil plants of southeastern Ohio. He taught primarily anatomy, morphology and paleobotany to a large number of students over a period of forty years. Art was noted for his concern and kindness toward his students. Many of his undergraduate and graduate students became life-long friends and remember him fondly in his role as both teacher and mentor. A large number of his students went on to graduate school elsewhere and several went on to teach and do research in botany and paleobotany, including Jeanne Morgan, Maxine Abbott, Arthur H. Beyer, and Ralph E. Taggart. Bickle and his students made the original collections of Upper Carboniferous plants of Ohio that form the nucleus of the enlarged and newly housed Paleobotanical Herbarium and paleobotanical research facility at Ohio University.

A. CROSS, R. TAGGART & G. ROTHWELL

BOOK REVIEW

Evolutionary paleobiology: in honor of James W. Valentine. Jablonski, D., D. H. Erwin & J. H. Lipps (1997). 484 pp., illus., maps. Chicago: University of Chicago Press. £63.95 and \$80.00, cloth (ISBN 0-226-38911-1); £23.95 and \$29.95, paper (ISBN 0-226-38913-8).

This collection of 16 essays honours a leading North American invertebrate paleontologist and palaeoecologist, James Valentine, most of whose career has been spent at different campuses of the University of California. His career has spanned effectively the whole of the modern era of palaeontology, one marked by its effective integration or reintegration into modern organismal biology and its impact on the latter's intellectual expansion. This reviewer remembers the somewhat somnolent state of the field as it existed while an undergraduate at the senior editor's university in the late 1950s and early 1960s; no Committee on Evolutionary Biology, now a successful interdisciplinary

Fachbereich like its better known Committee on Social Thought, then existed. Patterson's work has strongly influenced this development, as the editors describe in their biographical essay (Chapter 1) which also includes a bibliography of his publications. He is also one of the four authors of the well-known textbook, *Evolution* (1977) of which the late Theodosius Dobzhansky was the senior.

Following this introduction, there are 16 chapters grouped in five sections, respectively on 1) origins, hierarchies and diversity; 2) ecological systems; 3) large-scale trends, interactions and constraints; 4) biogeography, faunal turnover and extinction; and 5) mentors. The chapters are followed by a geological time scale – always useful in a palaeontological book – and author and subject indexes. Lists of literature are not cumulated, but follow each essayist's contribution. The author index, however, enables tracing of all papers or books by a given writer.

It is impossible in a short review to examine every contribution in detail; it seems clear, however, to this nonspecialist that Valentine was a factor in many if not most of the numerous themes they explore. I single out a few of personal interest. The evolution of metazoan body plans is one with important botanical parallels, which Karl Niklas and others have explored in recent years and was the subject of a Linnean Society of London symposium, *The Evolution of Plant Architecture*, in 1995. Aspects of this are explored by Sepkoski (chapter 8), Jablonski (chapter 9), Kidwell and Brenchley (chapter 10) and Cowen (chapter 11). Sepkoski in particular presents a quantified scenario based on competition in an attempt to explain relative success or failure, so well highlighted for lay readers in *Wonderful Life* (1989) by S. J. Gould (also a contributor here, with chapter 17 on an unpublished letter from Charles Darwin to his mentor Adam Sedgwick late in the older man's life). Another theme is diversity patterns over time. Valentine early was interested in the processes behind changing marine patterns; these included changes in the number and size of provinces. Vermeij and Flessa and Jablonski develop this respectively for gastropods and bivalves in chapters 13 and 14. The two latter authors opt for considerable geographical variation, highlighting the importance of tropical waters with their greater niche specialisation. Jackson et al. also explore process in relation to communities, with a test of exclusivist (Eltonian) or individualist (Gleasonian) hypotheses in Chapter 5. Hierarchical models of diversity, another of Valentine's themes, are again explored by Eldredge – Gould's

associate in 'punctuated equilibria' – in Chapter 3. He concludes that while continuity of line and branching was one way to represent evolution, at the far larger scales represented by the fossil record other dimensions came into play. This is not unlike the relationship between the Newtonian and Einsteinian views of the universe. It also has an important bearing on continuing debates within systematics over limits, if any, to Henningian explanations of relationships and the consequences for the long-established 'Linnaean' hierarchy. Gould's essay apart, the wider philosophical concerns of Eldredge set his essay off from others in this book. A remark on p. 42 is telling: 'the search for ever more fundamental particles ... fits nicely with the Western preoccupation with ferreting out root causality'.

Something is missing, however, from this collection. All these studies are of process; yet they depend ultimately on effective knowledge of the patterns of diversity described over 200 or more years and often meticulously documented, sometimes only decades after collection as Gould related in 1989. Charles Darwin's later work was partly founded on his own monographic study of barnacles; and several authors here list their often many sources. Sepkoski himself wrote a paper acknowledging years of library research (1993, in *Paleobiology* 19: 43–51, cited in Chapter 9). Yet there is no contribution celebrating the massive enterprise of information accumulation, nothing in praise of, for example, that Grove's Dictionary of Art of the palaeontological world: the *Treatise on Invertebrate Paleontology*. Such work is as much part of science as the study of process; certainly Diderot so thought. But it may be mere broadcloth in an age of Versace: too mundane for a historical norteamericanos. A chapter on this theme to follow that of Gould would have thus been a most welcome addition to the book.

In general, however, I can recommend this book given the caveat above. It is well-produced if relatively expensive, certainly so in the United Kingdom, and should give students in the field and others a sense of the dynamism in modern palaeontology. It is, however, more a set of attempts to explain diversity, not also a celebration which might draw in a less specialised audience in the way that Holldöbler and Wilson did nearly a decade ago with *The Ants*.

D.G. FRODIN, Royal Botanic Gardens, Kew, London, UK