

IOP NEWSLETTER 51

APRIL 1994

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PLEASE MAIL NEWS AND CORRESPONDENCE TO
YOUR REGIONAL REPRESENTATIVE OR TO THE
SECRETARY FOR THE NEXT NEWSLETTER 52.
The views expressed in the newsletter are those of its correspondents and do
not necessarily reflect the policy of IOP.

IOP NEWS

SECRETARY'S SUPPORT TO THE PRESIDENT'S LETTER

The last newsletter was number 50, a bicentenary without the years. But a geological year may not always have had 365 x 24 hours, let alone 3 IOP newsletters, so it was no event and IOP made no celebration of the milestone. We are just thankful to keep going and avoid extinction.

But Newsletter 50 did carry a message from our new President, Tom Taylor, and that message was more important than any celebration. He was asking for action, for you all to contribute something to this organisation. Since then I have received eight voluntary items, rather fewer than the usual number in these three months, all brief, and included here. The other contributions have been requested or taken. So it's a short newsletter.

Please, individual members, send your IOP Regional Representative something for your money. Through the last few years there has been very little coming from America, Asia and Australasia, and that's just the first letter of the alphabet (and more than half the IOP membership!). So come on you three A's. Do something for IOP.

NEW REGIONAL REPRESENTATIVES

These members collect items for this newsletter and distribute it to others in their region. These two new representatives are from Russia and South America, regions which have their own membership system and newsletter duplication scheme.

The new regional representative for Russia is D. Gromyko, Department of Palaeobotany, Komarov Botanical Institute of the Russian Academy of Sciences, Prof Popov Street, 2, St Petersburg, 197376, Russia, phone: (812) 234-8464, fax: (812) 234-45-12, E-mail: binran@glas.apc.org.

The new regional representative for South America is A. B. Zamuner, Division Paleobotanica Facultad de Ciencias Naturales, Paseo Del Bosque S/Nro 1900, La Plata, Argentina.

LEADERS OF THE 1994 EUROPEAN PALAEOBOTANY CONFERENCE

The newsletter editor apologises for an error on page 7 of the last edition. He should never rely on computers. The addresses of the chairman and

secretary for the 4th European Palaeobotanical Palynological Conference were misprinted.

Chairman: H. W. J. van Ameron, Geological Survey North Rhine Westphalia, Box 1080, D-4150 Krefeld, Germany. (telephone 49 2151 897 255).

Secretary-General: G. F. W. Herngreen, Geological Survey of the Netherlands, Box 157, 2000 AD Haarlem, The Netherlands. (telephone 31 23 300359)

PLANT FOSSIL RECORD DATABASE VERSION 2

This was launched at the April presentation of the United States' initiative Systematics Agenda 2,000 in London. PFR2 contains more than three quarters of a million plant fossil occurrence records, taxonomic descriptions of the 10,477 plant fossil genera of PFR1, and a skeleton bibliography. All these facilities can be searched on the Internet and results e-mailed back as long as they do not exceed 1,000 lines of data from each search. So if you are on the Internet register your machine with boulter@uel.ac.uk (or try: boulter%uel.ac.uk@earn-relay) and login details will be returned to you. Please understand that the PFR2 is at the development stage and so it may not be available all the time. An important methodological feature of this new IT facility is that you must refer to the original publication of the source of the identification to confirm the reliability of the information. This kind of user independence is a growing feature of the Internet culture. A booklet about PFR2 is available from the IOP Secretary.

NEWS OF FORTHCOMING MEETINGS

**FIRST WALTER A. BELL MEMORIAL
SYMPOSIUM ON PALAEOBOTANY
AND COAL SCIENCE, Euramerican
Carboniferous Paleobotany, May 28 -
June 1, 1995, University College of Cape
Breton, Sydney, Nova Scotia, Canada.**

Three workshops will be on Carboniferous palynology, coal-ball flora and maritimes compression/impression floras.

Walter A. Bell was a pioneer in studies of Carboniferous coal-bearing strata of the Maritimes

and a Director of the Geological Survey of Canada. The Symposium is being sponsored by the University College of Cape Breton, Geological Survey of Canada, Cape Breton Miner's Foundation and Glace Bay Miner's Museum, and the U.S. Geological Survey.

The first Bell Symposium will focus on the paleobotany of Carboniferous coal-bearing strata in Euramerica. Fifteen keynote speakers and invited speakers from Canada, the United States, and Europe will give talks on significant coal-related research on Carboniferous paleobotany and palynology. One of the keynote speakers is Canada's foremost coal geologist, Dr. P. A. Hacquebard of the Geological Survey of Canada, who will speak on the coal geology of the Maritimes. In addition, there will be about 20 other speakers whose talks will center on Euramerican late Paleozoic paleobotany and floral biostratigraphy. For example:

Dr R. H. Wagner: Stephanian floras of North America

Dr J. Galtier: Coal-ball floras of the Westphalian of Europe.

The Symposium will include a half-day field trip of the Carboniferous coal-bearing strata of the Maritimes. There will also be tourist activities and a half-day workshop on Carboniferous palynology, Carboniferous compressional plant fossils of the Maritimes, and newly discovered coal balls from Nova Scotia. A post-Symposium tour of the historical Fortress Louisbourg is also planned.

There is a limit of about 100 people (including spouses) so early registration is best. The first circular was mailed in February, 1994. For a copy of the 1st Circular or for further information contact: Dr Erwin L. Zodrow, University College of Cape Berton, P O Box 5300, Sydney, Nova Scotia, Canada B1P 6L2 (Fax 902-562-0119); or Dr Paul C. Lyons, U.S. Geological Survey, Mail Stop 956, Reston, Virginia, USA (Fax 703-648-4227).

INTERNATIONAL CONFERENCE ON DIVERSIFICATION AND EVOLUTION OF TERRESTRIAL PLANTS IN GEOLOGICAL TIME. September 4-9, 1995, Nanjing, China.

This is organised by Nanjing Institute of Geology & Palaeontology, the Academia Sinica and the Palaeobotanical Society of China. The international conference on the diversification and evolution of terrestrial plants in geological time (ICYPG) will be held in Nanjing, China. There will be post-symposium excursions from Sept. 10-19, 1995) to provide a forum for discussions and

promoting the progress in palaeobotanical research and its applications.

The topics of the conference are mainly about megafossil plants.

- Origin and early evolution of terrestrial plants
- Taxonomy, anatomy, diversification and evolution of terrestrial plants in various geological periods
- Gigantopterid plants
- Origin and early evolution of angiosperms
- Paleophytogeology
- Paleophytogeography
- Paleophytotaphonomy
- Applied paleobotany
- Synthetical research on mega- and micro-fossil plants
- New techniques and methods in palaeobotanical study.

The field excursions are from Sept. 10-19.1.

Henan-Route: Yuxian - Yima - Xi'an

Cathaysian flora and Jurassic ginkgophytes' flora

Travelling fare: \$50. Organising fee: \$20

2. Shandong-Route: Ji'nan - Shanwan-Qingdao, Miocene Shanwan flora. Travelling fare: \$50. Organising fee: \$20

3. Yunnan-Route: Kunming - Qujing-Wenshan, Early terrestrial plants. Travelling fare: \$150. Organising fee: \$40

4. NE China-Route: Jixi-Yanji-Fushun-Beijing, Early angiosperms and Cenozoic plants. Travelling fare: \$200. Organising fee: \$50

ERIC HOLTUM MEMORIAL 1895-1990 PTERIDOPHYTE SYMPOSIUM, Royal Botanic Gardens, Kew, UK. 17th July-21 July 1995.

Professor Eric Holttum was pre-eminent among the pteridologists of the 20th century. This meeting has been organised to celebrate his outstanding contribution to the study of ferns and fern allies. The Symposium will be held from 17th to 21st July during a week following the third International Flora Malesiana Symposium. The aim is to bring together all those interested in ferns to exchange information. Papers will be presented on a wide range of subjects including taxonomy, biodiversity, biogeography and horticulture. To receive the second circular for the Symposium write to R. Johns, Royal Botanic Gardens, Kew.

This is the eighth meeting of this group and will consider all Gondwana palaeobotany and palynology from the PreCambrian to the Quaternary, with special emphasis on South America.

Contact Prof. Oscar Rosler, 1 Geociencias VSP, Cx Postal 20899, 01498 - 970 - San Paulo, Brazil.

T.M. HARRIS ON 'RED EGGS'

Seven years ago, when Mahendra Bose and I worked on some Early Cretaceous cuticle-bearing beds in the Arctic, we came across oxidation resistant 'egg-like' objects which we subsequently described as cocoons of clitellates (Manum *et al.* 1991, 1992).

A few references by the late Tom M. Harris indicate that he had frequently observed similar objects and that he had been troubled by their nature since 1926, although he never described them. He had made a large collection of them from his cuticle macerations for his Greenland Rhaetic work. It is implied in his mentioning of them that he thought they were not of botanical nature, but zoologists were of no help in offering clues to their origin; perhaps this is why he did not describe these conspicuous objects and give away more of his reflections on them. (For references to Harris' mentioning of these objects, see Manum *et al.* 1991.)

In a letter which Harris wrote to the late Professor O. A. Hoeg on January 15, 1971, there is a long passage about the 'Red Eggs' story. It is a pity we didn't know about it when we wrote our cocoon papers. The letter confirms our impression from the few passages in Harris' papers that he was troubled by the nature of these fossil for most of his active life as a palaeobotanist. The letter describes how he went about to study comparative material, which is very typical of Harris' way of addressing such problems, by making experiments in his own garden and kitchen. This is the passage from Harris' letter.

"For almost 50 years I have been troubled by some sac shaped fossils 1-3 mm wide, composed of a non-cellular, very tough and chemically resistant material. I could not make them into any sort of plant, so mentally I pushed them into the animal kingdom and since they are mostly red and egg shaped I called them Red Eggs. They are pretty common in all plant bearing Mesozoic rocks I have looked at - often called Cycadeospermum etc. No

botanist nor zoologist could give me the slightest help.

"Then just recently at the bottom of an enormous compost heap of tree leaves I found nearly 100 eggs of our common snake 'grass snake'. They had duly hatched and all had a slit (as do my Red Eggs) and they are made of a tough fibrous membrane somewhat like that in my fossils. I had never thought my things might be eggs! So next I looked at the shell membrane of a hen egg and found this much more like my fossil. I must get the British Museum to let me see various lizard and other reptile eggs. Quite a lot of problem remains: these tough egg membranes are made of protein and are easily degraded chemically but my fossils are as resistant as cutin. I found I can toughen an egg membrane by baking it in the kitchen oven, but I am sure that is not like what happened. So I have some jars of a foul anaerobic mixture of pond mud, dead leaves and snake and hen eggs in the hope that something useful will happen. If it doesn't I shall be disappointed as I hoped one day I shall be able to send my final paper to the Royal Society under the title "Red Eggs"."

Apparently he was disappointed with the outcome of his experiment, since the Royal Society paper on 'Red Eggs' never materialized.

References:

- Manum S.B., Bose, M.N. and Sawyer, R.T. (1991) Clitellate cocoons in freshwater deposits since the Triassic. In: *Zoological Scripta* 20: 347-366.
Manum S.B. (1992) Seeds (*Burejospermum* Krassilov) and palynomorphs (*Dictyothylakos* Horst) with a netted wall structure reinterpreted: Clitellate coons. In: *Cour. Forsch.-Inst. Senckenberg* 147: 399-404.

S. B. MANUM, Oslo, Norway

NEWS OF INDIVIDUALS

C. SHUTE at the Department of Palaeontology, Natural History Museum, Cromwell Road, London SW7 5BD has new personal visiting cards. They give his e-mail address, C.Shute@nhm.ic.ac.uk, and his own personal logo which represents a recently described fossil plant. A prize of one pint of cheap beer will be awarded to all those who can identify it before May 31st 1994..

A. REES. The monthly gathering of British palaeobotanists at the Norfolk Tavern, London was disrupted in January by the unexpected imposition on the pub clientele of a protracted general knowledge quiz. Mischievously nominated by Jason Hilton and coolly led by Allister ('Indiana') Rees, the ad hoc

agglomerate of young(ish) palaeobotanists that constituted 'Palaeobotanists Anonymous' scored a memorable victory over 18 other teams. They were less successful in determining how the spoils - eight pints of beer and four T-shirts - could be divided equitably among the ten team members.

YUSHENG LIU of the Department of Paleobotany, Nanjing Institute of Geology & Palaeontology, Chinese Academy of Sciences, Nanjing 210008, P R China will start his postdoctoral work on Palyno-stratigraphy of Paleogene Coal Mine in NW China and Comparative study on certain living and fossil plants, etc. with Professor David K Ferguson of the Institut für Paläontologie, Universität Wien, Austria for about 6 months. It will begin in February 1994. LIU got his Ph.D in September 1992 based on his two independent theses: Vol.1 First discovery of *Cycas* fossil pinnae in China with comments on the phylogeny and historical phytogeography of *Cycas* (133 p 39 pls); Vol.2 Leaf architecture of the Betulaceae and the fossil history of Chinese Betulaceae (168 p 32 pls). He has planned to publish them in English soon.

N. ROWE has recently returned to Montpellier to take up a position with the CNRS and has rejoined Jean Galtier and Brigitte Meyer-Berthaud. His research projects with emphasis on Palaeozoic palaeobotany will continue particularly with respect to late Devonian and early Carboniferous seed plants. One aspect, which is being developed, in particular, is the biomechanical investigation of fossil plants with Thomas Speck (Freiburg). Examining the relationships between anatomy, biomechanics and habit and their application to long extinct plants, is being developed with colleagues from the Botanical Institute and will involve field experiments at the French tropical botany field station in French Guyana in March 1994.

His address and contact numbers are: Laboratoire de Paleobotanique, Université de Montpellier II, Institut des Sciences de l'évolution (URA 327 CNRS), 34095 Montpellier cedex 5, France. Telephone: 67143631, Fax: 67042032, e-mail: paleobt@frmpop11

V.A. KRASILOV, after some years of exotic activities in the field of nature conservation has transferred to the Paleontological Institute, 123 Profsojuznaya 117647 Moscow as a Leader of the newly organised Palaeobotanical laboratory. Dr Sci Lidya Fotyayeva, Dr Nurgali Makulbecov and Junior Research Worker Natalya Maslova are in the same laboratory. The research in the next years will involve the Devonian, Mesozoic and Tertiary floras. Krasilov is very sorry for not responding to the generous gifts of reprints from many colleagues. He hopes, however,

that they will extend their generosity to sending more materials, this time on the exchange basis.

HEIDI ANDERSON writes to say that the National Botanical Institute in Pretoria has one male and three female botanists on its staff. She draws comparisons with Laura Dern who recently appeared as a star in a popular film (= picture = movie).

LEV BUDHANTSEV is the host to regular cognac parties in the seminar room at the Komarov Botanical Museum in Saint Petersburg. These are lively academic discussions which are often dominated by arguments about Tertiary plant migrations. There is a very lively group of palaeobotanists from whom the IOP will hear more very soon.

B. S. VENKATACHALA has recently been awarded the position of Emeritus Scientist by the Council of Scientific and Industrial Research. He will be working in this capacity at the Wadia Institute of Himalayan Geology, 33 General Mahadeo Singh Road, Dehra Dun 248 001, India. He will be working mostly on PreCambrian and Cambrian biotas and will continue his interests in Gondwana and Cenozoic sediments.

R. BATEMAN has left his long-term research fellowship at Oxford University in favour of a permanent, associate professor-level research appointment in Edinburgh, held jointly at the Royal Botanic Garden and Royal Museum of Scotland. This recent change of fortune also brought council membership of the Systematics Association and the Linnean Society's Bicentenary Medal. Richard is currently the only palaeobotanist employed in Scotland (cf. Barry Thomas's description of professorial palaeobotany in the tiny principality of Wales in a recent IOP Newsletter). As well as academic visitors, he would therefore welcome support for the establishment of further positions.

M. BOSE has sent the editor a copy of a letter sent to India on 14th October 1982 by **T. M. HARRIS** who was arranging to visit Lucknow. He died in England on 1st May 1983.

"Dear Bose, Here are two matters in case I fall ill and/or die [when I am with you].

1. I have a Lloyds Bank Insurance policy in case I have expensive medical treatment, for four months, to 12 Feb 1983. I suppose this could be extended if I do it early but as I plan my visit will be for four months only.

2. If I die, I strongly suggest that I should not be posted home, an expensive and useless operation. An Indian funeral seems to me a good way. My next of kin in England is my daughter Margaret O. Harris who knows my wishes."

NOMENCLATURE

CHANGES IN ADMINISTERING FOSSIL PLANT NOMENCLATURE

This year marks a milestone in the history of the Fossil Plant Committee "of" (or more correctly, if more pedantically, "sponsored by") the International Association of Plant Taxonomy. Bill Chaloner of Royal Holloway and New Bedford College, London and Al Traverse of Pennsylvania State University are retiring as Chair and Secretary respectively of this Committee, which is palaeobotany and palynology's official "voice" in the formulation of successive editions of the International Code for Botanical Nomenclature, after terms of about 19 and 24 years respectively. Bill is retiring completely from the Committee at his own request (but will remain involved temporarily as one of the compilers of the "Yokohama Code"), but Al has been persuaded to stay on the Committee as a regular member and add his experience in the future. As the incoming Chair, I would like to take this opportunity on behalf of all fossil plant researchers to thank Bill and Al for their largely unheralded, but vital service over the years in representing our discipline in the official nomenclatural realm. Also retiring from the Committee are J. Galtier and Li Xingxue, and they are also to be sincerely commended on their contribution to the committee and fossil plant nomenclature.

Judy Skog has agreed to take over the Secretary's job. The Committee, ratified by the Yokohama Botanical Congress, is thus now as follows (new members are indicated by an asterisk):

Chair R. A. Fensome, Dartmouth Nova Scotia Canada.

Secretary J. E. Skog, Fairfax, Virginia, USA.

Members S. Archangelsky, Buenos Aires, Argentina.

D. J. Batten, Aberystwyth, Wales, UK*.

K. Faegri, Bergen, Norway.

M. Fairon-Demaret, Liege, Belgium.

J. Jansonius, Calgary, Alberta, Canada.

V. Krasilov, Moscow, Russia.

H. K. Maheshwari, Lucknow, India.

D. J. Nichols, Denver, Colorado, USA.

G. Playford, Brisbane, Queensland, Australia*.

R. L. Ravn, Anchorage, Alaska, USA*.

F. Schaarschmidt, Frankfurt am Main, Germany.

A. Traverse, Pennsylvania, USA.

B. S. Venkatachala, Dehra Dun, India.

V. Wilde, Frankfurt am Main, Germany*.

Zhou Zhiyan, Nanjing, P R China*.

If any palaeobotanists have concerns about nomenclatural matters, or would just like to give

feedback to the Committee, I encourage them to contact any member of the Committee, myself (Rob Fensome, Geological Survey of Canada, PO Box 1006, Dartmouth, Nova Scotia, Canada, B2Y 4A2; e-mail: rob=fensome @agcban1.bio.ns.ca) or Judy Skog (Department of Biology, George Mason University, Fairfax, Virginia 22030, USA; e-mail: jskog@gmuvmx.gmu.edu). Judy or I can supply a full list of Committee members' addresses on request and will contribute items to the IOP Newsletter as matters of interest arise. This exercise will serve to keep you informed, and us on our toes, with regard to the latest happenings in *Taxon* and elsewhere.

R. FENSOME, Dartmouth, Nova Scotia, Canada

BOTANICAL NOMENCLATURE AT TOKYO

The XV International Botanical Congress in Tokyo, meeting at Yokohama, Japan, in August-September 1993, restructured the International Code of Botanical Nomenclature and made important improvements designed to reduce changes in the instability of names.

The Congress passed a Resolution (attached) urging taxonomists concerned with the various groups of organisms covered by the Code to avoid making name changes for purely nomenclatural reasons, while further progress towards a more stable system was made.

Editors and referees need to be alerted to this changed situation. In particular they should be encouraged to ask two questions to any paper proposing name changes:

(1) Do changes result from new scientific evidence?

(2) If not, has advantage been taken to the expanded conservation, rejection, and typification possibilities newly available?

The published version of the new Code will not be available for some months. In the interim, details may be found in *Taxon* 42:907-922 (Nov. 1993), and selected highlights are included in *Taxon* 42: 925-927 (1993), *Systema Ascomycetum* 12:1-6 (1993) and *The Linnean* 10:12-15 (1994).

In order to encourage nomenclatural stability, your assistance would be appreciated in promulgating this important information to the editors of biological journals in your country or subject area.

TEXT OF RESOLUTION 1 SUBMITTED TO THE FINAL PLENARY SESSION OF THE XV INTERNATIONAL BOTANICAL CONGRESS

Considering the great importance of a stable system of scientific names of plants for use in the pure and applied sciences and in many other domains of public life and economy;

Noting with satisfaction recent important improvements of the International Code of Botanical Nomenclature and ongoing efforts to explore new avenues for increased stability and security in the application of plant names;

The XV International Botanical Congress urges plant taxonomists, while such work continues, to avoid displacing well established names for purely nomenclatural reasons, whether by change in their application or by resurrection of long-forgotten names;

Resolves that the decisions of the Nomenclature Section with respect to the International Code of Botanical Nomenclature, as well as the appointment of officers and members of the nomenclature committees, made by that section during its meetings, 22-27 August 1993, be accepted.

PUBLICATIONS OF ACTA PALAEONTOLOGICA POLONICA

Acta Palaeontologica Polonica is in the process of expansion in scope and coverage. The Acta publishes papers in all areas of theoretical, systematic and morphological paleontology. It is intended for global dissemination of paleontological knowledge. The journal solicits papers on all subjects from abiogenesis to zoogeography, and from acritarchs to zooxanthellae. There are no page charges, and all papers not exceeding 100 manuscript pages will be considered.

Acta is known for its very high standards and publishes on acid-free paper, with a high resolution of photographs. All papers are reviewed by two or more referees, and are published in order of acceptance.

Contact: Prof Jerzy Dzik, coeditor, Institute of Paleobiology, Al. Zwirki i Wigury 93, 02 089 Warsaw, Poland. Fax 4822 221 652, or: Dr Matthew M Hitecki, coeditor, Department of Geology, Field Museum of Natural History, Chicago IL 60605-2496. Tel:312/922-2410 X 298; Fax:312/427-7269

BOOK REVIEW

VEGETATION OF WEST JAVA, INDONESIA. Stuijts, I.- L. M. (1993). A.A. Balkema. Rotterdam, Brookfield. i-xii; 173pp; 13pls; 22 figs (incl. 4, loose, fold-out sheets). ISBN 90 5410 148 2. Price DFL105.00; £39.00.

Java, is one of three Indonesian islands comprising the Greater Sunda Group, the others being Sumatra and Borneo. It is about 1100 km in length, and lies roughly between latitudes 6° - 8° S. Its climate is transitional, between everwet and monsoon type.

In late Pleistocene and Holocene Vegetation of West Java, Indonesia, the author begins by emphasising the paucity of knowledge regarding vegetational history of Java for the Quaternary period. She then outlines the main objective of the study, which is to provide a reconstruction of the vegetational and climatic history of West Java during the late Pleistocene and Holocene periods, up to 17,000 years ago. The eight lake and marsh sites selected for study are all at 1,000m level or more, and situated in the Priangan District. Within this district lie two large chains of mountains, one to the north, and the other to the south. The mountains, most of which are volcanic in origin, are mainly of Tertiary age.

The book is divided into sixteen sections. Section 1 gives a brief Introduction. Section 2, Physical Environment, provides an outline of the geology of the area studied, and the climate, in particular of West Java, eastwards. Section 3, Modern Vegetation, is a very readable account of the vegetation types, with particular emphasis of West Java. The standard reference to the flora and its present day distribution, is Backer & Bakhuizen's (1963-8) 3 volume work, "Flora of Java". Section 4, Field and Laboratory Work deals with methodological approaches to sampling; sample processing; microscopy; identification and presentation of results. Here the thorough Dutch approach is immediately apparent. Section 5, surface Sample Studies, confronts the ever present problem of anemophilous species which produce copious quantities of pollen, frequently settling a long way from their parent plants, versus entomophilous species, which tend to be under-represented in fossil pollen spectra. The author points out that from the point of view of her own studies, extinct volcanic craters provided a good source of local pollen, with regional pollen minimized, as opposed to high regional pollen counts from samples collected in open grassland, or shrubby areas. Moss polsters from Gede Pangrango National

Park - "one of the few places in Java where a large area of more or less natural vegetation is found", - and also from two of the coring sites, Kawah Putih and Ranca Upas, were examined as an aid to the later interpretation of pollen diagrams. Pollen spectra for the three surface sample studies are included as fold-out sheets. Java and Sumatra lie quite close to each other and their present mountainous areas share the same climatic and vegetation characteristics. The author has provided summaries of pollen spectra collected from moss polster samples in Sumatra, at sites in two localities above 1,000 m for comparison with the Java pollen spectra. The section concludes with remarks regarding the more pertinent differences between the surface sample spectra of the two islands.

The ensuing eight sections, Sections 6 - 13, present the results of core studies from the eight study sites, three of which are in the northern mountain chain: 1. Situ gunung (within Gede Pangrango National Park); 2. Telaga Saat and 3. Telaga Putri (both on the edge of Gede Pangrango National Park), and five in the southern mountain chain: 4. Situ Bayongbong; 5. Ranca Upas 6. Telaga Patengan; 7. Kawah Putih and, 8. Situ Ciharus, the most easterly. Each of these eight sections is divided into three parts: 1. Locality and Lithology, 2. Pollen assemblage zones and, 3. Vegetational History. With the exception of two sites where it was not possible, radio carbon datings are provided. Fold-out pollen assemblage diagrams are included for all study sites.

Section 14 considers various aspects of pollen taxa encountered in the study. For example the use of pioneer or regrowth taxa as indicators of forest disturbance. Possible reasons, such as upslope pollen transport or seasonal storms, to account for the occurrence to taxa which do not apparently form part of the natural vegetation. Problems of distinction between two very commonly encountered taxa, "*Castanopsis comp.*" (Fagaceae) and the somewhat more enigmatic "*Castanopsis type*", are discussed.

The final discussion, Section 15, is also subdivided into three parts. 1, Vegetational and Climatic History of West Java: General Trends" discusses the correlation of records from the individuals sites, and the difficulties inherent on having to rely heavily on radiocarbon dating. Correlation diagrams are provided. Changes in climate and later land use, indicated by the shift in focus of dominant trees are considered. Part 2, Palynological Evidence from Sumatra, discusses the published results from three Quaternary sites in Sumatra, and Section 3, Comparison Between West Java and Sumatra, compares the palynologically-based evidence provided by the studies in West Java with that from Sumatra. Concluding that, "The overall trends for Sumatra and West Java are the same".

The final Section 16 is a list of Morphological Descriptions of Pollen and Spore Types. The list is arranged alphabetically by taxa, first pollen, then spores. It is a mix of generic and family names, as used in the text. Where a generic name is used, the family name is provided in parentheses. Lastly an Appendix, lists, for each study site, pollen and spore taxa present in the core samples, but in quantities too small for inclusion in the pollen diagrams.

This neat volume is well organised and generally easy to follow. Inevitably, however, there are some criticisms. Firstly those concerned with "getting one's eye in" to the Javanese place names and localities. Much better attention could have been given to the maps. Necessary time was spent getting to grips with names and localities of the study sites. It is all there in the text, and once assimilated into the mind, no problem. This is fine if time is not of the essence, an armchair travel book perhaps, but not in a handbook. Better locality maps and diagrams of sites studied could have avoided this initial confusion. A glossary to some of the Javanese epithets, would help the reader to feel at home with unfamiliar sounding place names, rather than having to find these lost among the text, e.g. "Telaga", a lake; "Gunung"; a mountain, "Upas", poison and so forth. There is a worrying mistake in family identity which is perpetuated through the book. *Pandanus* is in the Pandanaceae, it is not a palm, even loosely speaking, only a garden centre or a florist would dare! One senses from elsewhere in the text that the author knows this, and that it is a silly slip which no-one has picked up either at manuscript or proof stage. This slip first occurs on page 38, in reference to the pollen diagram for Situ Gunung. It is pollen of *Pandanus* which is particularly well represented in the diagram, not Palmae. The error crops up again on pages 40, 42, 111, and 121. "Flora Java", is certainly not the perpetrator of the error. On the subject of palms, there is an inconsistency in Section 16, the list of taxa; where Palmae and the alternative, conserved family name, Arecaceae, are both used. I have a particular interest in palms, so these mistakes and inconsistencies were apparent. Perhaps there are mistakes in other taxa, not obvious to me, I hope not.

This is a good and thorough account, it provides not only a useful introduction to the geology and vegetation of Java, it is rich in new data and other valuable and interesting detail. The author has achieved her objectives, filling gaps in the Quaternary vegetational history of Java with much needed data. Mme Stuijts has set a high standard for Quaternary studies in Java, and one hopes that other studies of this calibre will follow.

M. HARLEY, Kew, UK