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J. F. (Joe) Gerrath
Guelph

PATRON
His Excellency the Right Honourable / Son Excellence le Très Honorable
Ramon John Hnatyshyn P.C., C.C., C.M.M., C.D., Q.C.
Governor General of Canada / Gouverneur Général du Canada

ON THE INSIDE
À L'INTÉRIEUR

FUTURE ANNUAL MEETINGS
RÉUNIONS ANNUELLES

1993 - Iowa State University, Ames, IA with AIBS (Aug. 1-5 août)
1994 - Calgary, Alberta

EDITOR'S COMMENTS
COMMENTAIRE DU RÉDACTEUR

Who could have predicted that, within the span of a month, two major tropical botanical gardens would be devastated by hurricanes. While we have not heard much about the ravages of Hurricane Iniki at the Pacific Tropical Botanical Garden on Kauai, we have seen the effects of Hurricane Andrew on the Fairchild Tropical Garden in several TV reports. Many Canadian students have benefitted from the Tropical Botany course given at Fairchild each year, so it seemed appropriate to include in this issue a plea for aid which we received from Dr. Jack Fisher (see p.62) and which has already been published in the American Journal of Botany. In communications with our President, Usher Posluszny, who had planned a sabbatical visit to FTG next year, Jack Fisher told a hair-raising story of his successful fight to save his own residence, which culminated in the nailing of a heavy dining-room table across his front door. We are all happy that a good proportion of the damaged plants at FTG appear to be salvageable, and that those which cannot be saved are being used to further botanical knowledge. I also note that many nurseries in the Miami region, including such famous orchid growers as Jones & Scully and Orchid Jungle, were essentially wiped out and may not survive.

Planning for next year's annual meeting at Ames, Iowa, seems to be progressing well. Details of symposia should be available for publication in the

January Bulletin. There will be a joint banquet with the Botanical Society of America, and CBA/ABC will have a separate luncheon at which the Lionel Cinq Mars student award will be presented. A couple of years ago your Editor spent part of a sabbatical at Iowa State, mainly doing bibliographic research in the excellent Land Library. Visitors are allowed free access to collection stacks (not the case in many American university libraries) and any of you trying to locate articles in more obscure journals might consider visiting the Land Library during the CBA/ABC Annual Meeting. The library benefactor, Mr. Land, has a quotation mounted on the outside wall near the library entrance, which, although I don't remember the exact words, I can paraphrase as , "An excellent library is the foundation of an excellent university". In the current rounds of journal cutting in many Canadian university libraries, we might fervently wish that those who provide funding could be imbued with similar feelings.

I will end with my usual plea to members to send in items of interest for inclusion in the bulletin. Those of us producing the bulletin would like to send all of you our best wishes for success in the coming year.

Joe Gerrath, Editor/Rédacteur

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POSITION AVAILABLE:

ASSISTANT PROFESSOR
VEGETATION CONSERVATION SCIENTIST

Joint Appointment
Departments of Forest Science and Plant Science
Faculty of Agriculture and Forestry
University of Alberta

Applications are invited for a full-time, tenure track faculty position in the Departments of Forest Science and Plant Science in the field of vegetation conservation science. Responsibilities will include undergraduate and graduate teaching and research with one or more of the indicated specialties in support of the Faculty's new B.Sc. Environmental Sciences and Conservation, as well as established programs. The incumbent will be expected to develop an active research grant and graduate student portfolio.

The Departments of Forest Science and Plant Science have facilities for controlled-environment research, plant nutrition studies, cold storage of germplasm, tissue culture, cloning, and for plant production research. Excellent greenhouse and field facilities are available.

The ideal candidate will have depth of scientific experience in vegetation conservation, assessment, and management for consumptive and non-consumptive uses, and would be a specialist in one or more of the following areas: applied ecology; wildlands or wildlife habitat; land reclamation; wetlands; rangelands; forage resources and other cropping systems; vegetation assessment, inventory and management; environmental impact assessment; ecology of vegetation systems. The successful candidate will be capable of teaching and applying skills in rangeland, forests, parks or wildlands, and also to reclamation sites. This person will develop a research program in one or more of these areas of resource conservation and management in collaboration with other researchers.

Teaching duties will cover an array of these areas and will include contributions to an introductory course in global ecosystems and human involvement, a senior-level course in vegetation reclamation of forest lands, and new courses in vegetation inventory and vegetation conservation science.

Applicants must have a Ph.D.; postdoctoral and teaching experience is desirable. A degree related to wildland or cultivated land management is desirable. Duties to commence July 1, 1993, or earlier (negotiable). The current annual salary range (Assistant Professor, 1992/93 schedule) is $40,035 to $57,003 plus benefits. Closing date for applications is 31 December, 1992. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Applications, including curriculum vitae, transcripts and the names and adresses of three referees, should be sent to Dr. Bruce P. Dancik, Chair, Department of Forest Science, Faculty of Agriculture and Forestry, University of Alberta, Edmonton Alberta, Canada T6G 2H1 (Telephone: *403-492-4413, FAX 403-492-4323).

The University of Alberta is committed to the principle of equity in employment. The University encourages applications from aboriginal persons, disabled persons, members of visible minorities and women.

CFBS SERVICES NO LONGER TO BE USED

The president of CBA/ABC, Usher Posluszny, has notified the Canadian Federation of Biological Societies (CFBS) that CBA/ABC will no longer pay fees for services and is withdrawing from the Federation. This information was received by the President of CFBS on July 17, 1992. The move was a result of a resolution passed by the CBA/ABC Annual General Meeting in Truro on the recommendation of the Board of Directors (the resolution was published in the July Bulletin).

Why has this happened?

The basic reason is that the cost for services provided by CFBS became too expensive, and the members present at the AGM could see no benefit to either CBA/ABC or the botanical community at large.

The membership of CBA/ABC has dropped by approximately 33% in the last 2-3 years, and the cost of dues is believed to have played a role in this decline, directly or indirectly. The Treasurer's Report and Proposed Budget (printed in the last issue) show that there is a deficit of $3939.59 for 1991/92 and an anticipated deficit of $3650.00 for 1992/93. The deficit is primarily due to the fact that CBA/ABC has been subsidising fee transfers to CFBS to the extent of $10 for members with PhDs and $20 for members without PhDs. CBA/ABC members present at last year's AGM in Edmonton refused to increase the dues by at least $10, following the $40 increase in 1990, hence the subsidy. The Executive has been trying to negotiate with CFBS, pointing out that small societies with low dues may require some flexibility in CFBS fees, and that it was unfair to impose more increases when members are uncertain of benefits accruing. Some of the other societies have fees of $200 or more, and consider a $10 increase to be minor. There did not seem to be much sympathy with our point of view on the part of some members of the CFBS Executive.

It is generally accepted that the Science Policy Office is the lobbying arm of CFBS, and that this office has been very active over the years. However, the AGM attendees seriously questioned whether the botanical community, and CBA/ABC in particular, was actually receiving anything tangible from these lobbying efforts. There was a general feeling that little had, in fact, been achieved.

The 34th Board Meeting of CFBS in Victoria, B.C., approved a recommendation that societies delinquent in paying fees should sort out the problem and pay in full by February 1993, or be subject to a motion expelling them from CFBS (a motion that was actually made at this meeting and then withdrawn). Sylvia Taylor represented CBA/ABC at this meeting, and was informed that CBA/ABC was the ONLY delinquent society and we had to get our act together, or else. Subsequent information indicates that there are other delinquent societies, and that the hard-line approach was actually aimed at one of those societies which has been troublesome for several years, although this has never been stated by a present member of the CFBS Executive.

The 1992 AGM made the decision to cut our losses, withdraw from CFBS, and reorganize our dues structure with the intent of attracting more members, especially students. The new Executive will be examining the CBA/ABC finances and making recommendations to next year's AGM, for a mail ballot in 1993. One unofficial suggestion was to lower the dues to, e.g., $40, with a set amount (say $10) to be automatically deposited in the Macoun Endowment Fund (and therefore be tax-deductible) to increase the size and number of student travel grants, and another small amount to be put into an interest-bearing account (not tax deductible) that could be used for other things, such as costs for a member to lobby in Ottawa, to research information for lobbying, committee expenses, etc.

Information obtained since June 17, the date of the CFBS Board Meeting, shows that the Canadian Society of Zoologists have lost ca. 35% of their membership and are holding a referendum of their members this fall recommending withdrawal from CFBS, and that several other "new" societies intended to at least discuss the issues at their AGMs. The Canadian Society of Plant Physiologists (CSPP) is to continue to subsidise their members to the tune of $10 each for at least one more year, rather than increase dues, although they believe that they have lost a significant number of members. CSPP has had record-keeping problems for the last few years, and finds it impossible to know their correct membership numbers. There is to be very close studying of these numbers over the coming year, or so I was led to believe. Incidentally, CSPP has a new constitution, which takes effect next July and which will allow the dues to be changed by a simple vote of members present at the AGM.

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What has been/will be the results for CBA/ABC?

We hope that a revised dues structure will attract more members, both new and returnees, and that the intent to increase aid for student travel to meetings and to take direct action ourselves will prove to be meaningful to the membership. The voting at the AGM was unanimous, and much of the time was occupied with discussions on where we go from here. There were two positive results within two days of the AGM -- one new member and one member returning (who had resigned in protest two years ago).

We will have to bear with the high dues structure for one more year, mainly because CFBS by-laws state that constituent societies have to give one years's notice of intent to withdraw, and pay for the services for that year. As there had seemed to be some sympathy with our views on dues structure, and one hopes that CFBS really does not intend to cause the dissolution of a society, there was some suggestion to Usher Posluszny that he should try to negotiate a reduction in the amount we are forced to pay. The end result, in 1993/94, should be reduced fees that will bring more actual benefit to the Association, its members, and botany in general.

The Executive sincerely hope that we will have a more lively, vibrant, active, and re-active Association. It has been suggested that it be made known to the powers-that-be in the political arena that CBA/ABC is no longer associated with CFBS, that we are an association of professional botanists, and that we can offer expertise in many fields of plant science.

Sylvia Taylor, Secretary 1991/92

TOKYO BOTANICAL CONGRESS

The Second Circular for the XV International Botanical Congress, Aug. 28-Sept. 3, 1993, has been mailed. It includes the registration form, a form for choosing excursions and abstract forms. Preregistration (cheap rates) and abstract deadlines are April 10, 1993. If you wish to attend the Congress and have not yet received the Second Circular, please contact:

Registration Secretariat, XV I.B.C.
c/o International Communication Inc.
Kasho Bldg. 2F, 2-14-9
Nihombashi, Chuo-ku, Tokyo 103, JAPAN
FAX: [81] 3-3273-2445

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PROPOSITIONS DE CANDIDATS / NOMINATIONS

DIRECTEURS/BOARD OF DIRECTORS

Les membres de l'ABC/CBA sont invités à soumettre des nominations pour les postes de directeurs de l'association botanique du Canada.

trésorier [de 1993 à 1995]
3 directeurs [de 1993 à 1995]

Un des directeurs doit habiter à l'ouest de la frontière provinciale du Manitoba et de l'Ontario et les autres n'importent où.

Chaque nomination doit porter la signature d'au moins trois membres de l'association et doit être accompagnée du consentement de la personne nominée. **Les nominations doivent être reçues avant le 31 janvier 1993, par la secrétaire de l'association.**

Dr. Jean M. Gerrath, Secrétaire de l'ABC/CBA
Department of Horticultural Science
University of Guelph
Guelph, ON N1G 2W1

Members of CBA/ABC are invited to submit nominations for the following positions on the Board of Directors of the Association.

Treasurer [term - 1993-1995]
3 Directors [term - 1993-1995]

One of the Directors must reside west of the Manitoba-Ontario boundary.

Nominations must be signed by at least three members of the Association and must be accompanied by the consent of the nominee. **All nominations must be received before January 31, 1993, by the secretary of the Association.**

Dr. Jean M. Gerrath, Secretary CBA/ABC
Department of Horticultural Science
University of Guelph
Guelph, ON N1G 2W1

GEORGE LAWSON MEDAL

Members of CBA/ABC are invited to submit nominations for this prestigious award, to be presented at the next annual meeting in Ames, Iowa. A maximum of two awards may be given, one in each of the following categories of eligibility.

A. Recognition of the cumulative, distinguished contributions of a senior researcher, teacher or administrator who has worked in Canada for most of his/her career and who has contributed notably to the advancement of Canadian botany.

B. Recognition of a single outstanding contribution to botanical knowledge, which may be a published paper of exceptional significance, a series of published papers, a monograph, or a book. Canadian botanists at any stage of their career are eligible in this award category.

Nominations should be accompanied by a *curriculum vitae*, a clear statement of the nominee's contribution to Canadian botany, and as much documentation as possible (including letters by others supporting the nomination.). **Nominations should be sent to the President of CBA/ABC, who chairs the awards committee, before January 31, 1993.**

MARY E. ELLIOTT SERVICE AWARD

Members of CBA/ABC are invited to submit nominations for this award, which recognizes meritorious service to the Association by an individual member. If a suitable candidate is proposed, the award will be made at the next Annual Meeting in Ames, Iowa. No award was given at the 1992 Annual Meeting in Truro.

Nominations must include a citation of approximately 100 words and a statement detailing the service contributions of the nominee to CBA/ABC. **Nominations should be sent to the President of CBA/ABC, who chairs the awards committee, before January 31, 1993.**

Nominations for both awards are kept on file for three years after submission, but nominators are requested to provide updated information for the second and third years.

RECENT GRADUATES

McGill University - Dept. of Biology

Shoshana Pofelis (M.Sc.) "The development of sulfonylurea herbicide resistant birdsfoot trefoil (***Lotus corniculatus***) plants from *in vitro* selection." Supervisor: W. Grant.

Rosanne LeBlanc (M.Sc.) "Protein synthesis and drought stress in two rapeseed cultivars." Supervisor: R. Dhinsa.

Alison Hunter (Ph.D.) "Synchrony with host leaf emergence as a component of population dynamics in Lepidopteran folivores." Supervisor: M. Lechowicz.

Contributor: Rolf Sattler

Université de Montréal - Département de sciences biologiques

Pierre Hegedus (Ph.D.) "Action des phénols sur la vitrification des cultures de porte-greffes de pommiers M-26 et O-23 cultivés *in vitro*." Directeur de recherche: Chon Tôn Phan.

Université du Québec à Chicoutimi Maîtrise en ressources renouvelables

Mme France-Ida Jean (1992) "Analyse des produits naturels de ***Taxus canadensis***." Directeur de recherche: Dr. François-Xavier Garneau.

Mme Francine Belleau (1991) "Analyse de l'huile essentiel du ***Ledum groenlandicum*** Retzius." Directeur de recherche: Dr. Michel J. Gagnon.

M. Jean-Martin Lussier (1991) "Comparaison de la croissance de marcottes d'épinette noire adultes à celle d'individus issus de graines après feu." Directeur de recherche: Dr. Hubert Morin.

M. Jasmin Villeneuve (1991) "Influence des hautes températures sur la germination de graines de six espèces de conifères du Québec." Directeur de recherche: Dr. Réjean Gagnon.

M. Robert Sarrazin (1991) "Dynamique de sapinières et de pessières boréales sur une période de 40 ans après la coupe." Directeur de recherche: Dr. Hubert Morin.

Mme Martine Lessard (1990) "Caractérisation des produits naturels odorants retrouvés dans les lichens de genres ***Usnea*** et ***Bryoria*** dans la région du Mont Apica." Directeur de recherche: Dr. Michel J. Gagnon.

Contribution de Sylvain Cloutier

University of Guelph - Dept. of Botany

Ph.D.

Christopher Briand (1992) "Architecture of ***Thuja occidentalis*** (Eastern White Cedar) in relation to habitat." Advisor: Usher Posluszny.

Maurice Oishi (1991) "The regulatory role of abscisic acid, maturation drying and the maternal environment in kernel development and germination in maize (***Zea mays*** L.)." Advisor: J.D. Bewley.

Tannis Berry (1991) "Role of the fruit tissue ABA and osmoticum in maintaining developmental events and inhibiting germination in tomato seeds." Advisor: J.D. Bewley.

M.Sc.

Lianne Todd (1991) "The role and regulation of storage proteins in the bark of temperate tree species." Advisor: John Greenwood.

Janet Cox (1991) "Relationships between vegetation and environment along talus slopes of the Niagara escarpment." Advisor: Douglas Larson.

Marc Charbonneau (1991) "Effects of phosphate and myo-inositol on phytic acid, protein and mRNA synthesis in castor bean seedlings.." Advisors: J. D. Bewley and John Greenwood

Margaret M. Brown (1991) "Glutathione and anionic binding in metal in ***Agrostis gigantea*** Roth and ***Deschampsia caespitosa*** Beauv." Advisor: Wilf Rauser.

Nathalie Bourgouin (1991) "Effects of carbon dioxide, methyl jasmonate and abscisic acid on leaf morphology in two amphibious ***Ranunculus*** species." Advisor: Roger Horton.

Amarjit Singh (1991) "Tomato spotted wilt virus induced proteins." Advisor: Annette Nassuth.

Contributor: J.F. Gerrath

Photographs: Erich Haber

Jack McLachlan receives Lawson Medal from President Paul Catling [top photo] and poses with his award [bottom photo].

LAWSON MEDAL

Dr. Jack Lamont McLachlan

Jack McLachlan receives the Lawson Medal in recognition of his outstanding scientific achievements over the period of his career as a phycologist. He received his Ph.D. in 1957 from Oregon State College. He did postdoctoral work at Woods Hole Oceanographic Institute and the National Research Council of Canada in Ottawa. From 1961 until April, 1991, he worked as a federal scientist in the NRC Institute for Marine Biosciences in Halifax. He continues there as a guest, but will soon take up a position as Honorary Research Associate at Acadia University.

As those supporting his nomination have pointed out, "he has always carried the flag for Canada and has been an extremely worthy representative of Canadian botany". Jack is recognized worldwide as an expert in his field as evidenced by hundreds of invitations. He has done a great deal of service to botany, having had teaching responsibilities with several universities as adjunct, visiting professor or honorary research associate. His extensive teaching and training have been without financial compensation and he is obviously a very dedicated teacher.

Jack has been editor of the Proceedings of the Nova Scotian Institute of Sciences, Chairman of the International Seaweed Association, Treasurer of the International Phycological Society, and Chairman of the CBA/ABC Phycology Section. He has served on the International Advisory Committee of the International Seaweed Association since 1968.

In more than 165 research papers of exceptional quality in refereed scientific journals and 34 other publications, including books, book chapters and refereed proceedings, and two patents, Jack has substantially contributed to our understanding of marine algal anatomy, culture, nutrition, life history, autecology and community structure. The genus of green algae, ***Chlorojackia***, is named in his honour. His scientific achievements have been recognized through his election to the Royal Society of Canada and now additionally by his receipt of the Lawson Medal.

Paul Catling, CBA/ABC President

CBA/ABC AWARDS - TRURO

LAWSON MEDAL
Dr. Paul Keddy

Paul Keddy receives the Lawson Medal for an outstanding single achievement: that being his book entitled **Competition** published in 1989 by Chapman and Hall, London.

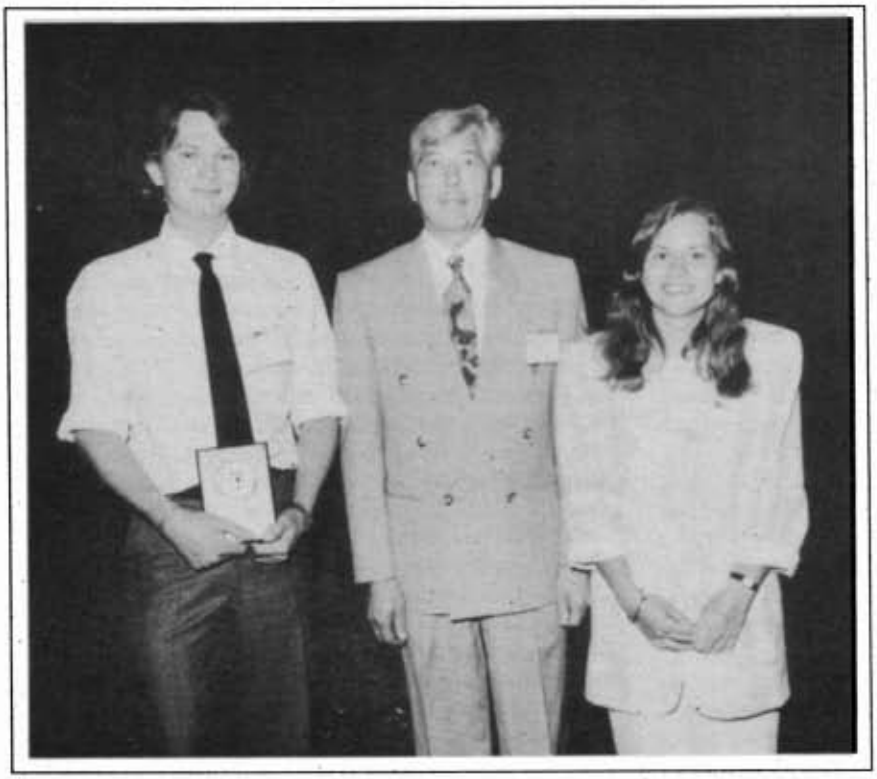
Paul received a B.Sc. from York University in 1974. In those early days Paul belonged to a special group of field biologists. This group, the Algonquin Park group, influenced its members in a very profound way, creating strong and life-long commitments to field biology. Paul served as an interpretive naturalist in Algonquin from 1971 until 1973. From 1975 to 1978 Paul was founding president of the Halifax Field Naturalists Club. By the end of 1978 there were 200 members. They had a constitution, monthly meetings, field outings and conservation activities. Paul received his Ph.D. from Dalhousie University in 1978.

From 1978 until 1982 Paul worked as an Assistant Professor at the University of Guelph. Since 1982 he has been at the University of Ottawa where he is now a Professor. Paul considers teaching and training as a very important scientific responsibility and he has had an impressive number of graduate and postdoctoral students. He is widely sought as an expert and serves as an advisor to many government and non-government agencies. He has had many professional responsibilities, including the co-ordination of the scientific committee of the Canadian Council on Ecological Areas. He acted as secretary of our ecology section in 1981 and 1982. Paul has also done a great deal of conservation work. In particular he has contributed to the protection of the coastal plain flora of southern Nova Scotia.

Nick Hill receives Lawson Medal from CBA/ABC President Paul Catling on behalf of Paul Keddy who was unable to attend the Truro annual meeting. [Photo: Erich Haber]

Paul has over 100 publications, mostly refereed, and an international reputation for excellence in his field. In 1991 he received the Henry A. Gleason Award from the Botanical Society of America. This was no surprise to those of us who know him well. His nomination for the Lawson Medal has been supported by ecologists from around the world and across Canada. His book provides an accurate general account of plant competition, but perhaps its greatest value is in the way it challenges conventional thinking and conventional approaches to science. Most (99.9%) of the world's biomass is plants, yet most of what we know about competition (too much in fact) is based on studies of animals. This book suggests new directions and examines the constraints to progress. It creates discussion and debate, and it has already stimulated a great deal of thought. The reviews and commentaries are so numerous that there is hardly a need to say any more about it.

Paul Catling, CBA/ABC President



THE "GUELPH GANG" with "Godfather" Larry Peterson [centre] and his award-winning henchpersons.

On the left is Stephen Bradbury, winner of this year's Lionel Cinq-Mars Student Competition [who returned from the meeting to successfully defend his thesis].

On the right is Pamela Scales [now at University of B.C.] who received the 1992 Luella K. Weresub Award for the best mycological paper [co-authored by Dr. Peterson].

Gagnante deux fois à la rencontre annuelle de l'ABC/CBA à Truro, Isabelle Goulet, Université de Montréal et Jardin botanique de la ville de Montréal.

Elle a reçue la bourse de voyage Macoun et une mention honorable à la compétition Lionel Cinq-Mars.

Photographs: Erich Haber

BOOK REVIEWS / ÉVALUATIONS

Pollen and Spores. Form and Function. Edited by S. Blackmore & I.K. Ferguson. Linnean Society Symposium Series. Number 12. Academic Press, 1986. p. i-xvi, 1-443 [US$ 148.00]

This volume, dedicated to the memory of Jan Muller, contains 28 papers (all but one in English) and 9 posters presented at an International Symposium organized by the Linnean Society of London and the Systematics Association, 27-29 March 1985, at the British Museum (Natural History). In the Foreword, W.G. Chaloner remarks that "It is perhaps too easy, in attributing function to spores and pollen, to underestimate the range of adaptive forces involved, and to oversimplify. The spore/pollen exine is the most inert material that plants produce, and yet it may carry a delicate and precise biochemical signal which is quick acting and labile. It can signal genetic 'acceptability' on arrival on a stigma, or induce devastating allergy in the respiratory system of man. Features of the exine may, to the taxonomist, be valuable idiosyncrasies of a systematic group, but also offer insights into the complex struggle of the haploid grain intruding into the diploid privacy of the stigma or micropyle."

Although the book is broadly 'palynological' in scope, the papers reflect a wide array of interests: paleopalynologists date old rocks in hydrocarbon exploration by the contained spores; plant systematists use the spores/pollen as further evidence to establish relationships; pollination specialists study the effect of pollen vectors, and pure scientists work to unravel the molecular deposition in the formation of sporopollenin.

In spite of the fact that the papers were presented seven years ago, the topics are remarkably fresh, up-to-date and relevant, both to paleopalynologists and botanists, and provide a wealth of information. Perhaps the relevancy may reflect the fact that this volume has not received the exposure and circulation that it deserves, and that its findings are therefore little known among the ranks of palynologists.

In the space of this review it is not possible to give a digest of each contribution to the book. I will list and characterize those papers that to me seemed most important.

Dickinson & Sheldon investigate the origin of the patterning of ***Lilium*** pollen, which apparently is determined at the first deposition of exinous tissue. Rowley & Rowley document successive stages in the growth of the microspore wall of ***Ulmus*** pollen: they conceive the exine as an active and changing system that is a living and functional part of the male gametophytic organism throughout its development. Hideux & Abadie relate early exine development of ***Saxifraga*** species to the subdivision of this large genus. Barnes & Blackmore investigate the changing/multiple role of a number of diagnostic features (callose wall, primexine, onci) during development of the pollen of ***Cosmos*** and ***Scorzonera***. Nowicke et al. compare pollen of some eight families (after they had been degraded by plasma ashing, an oxidation process that can be carefully controlled), and use the results to speculate on biological relationships.

Hesse investigates the nature, form and function of pollen-connecting threads in angiosperm pollen (usually those carried by birds or insects), and concludes that the strict difference in the composition of cohesion threads (that may or may not contain sporopollenin) is the cause that acetolysis can severely restrict our knowledge of pollen form and function.

Thanikaimoni discusses form and function of pollen apertures, and relates many developments to the pollination strategies of the mother plants, their habitat, as well as their phylogeny. Blackmore & Barnes relate harmomegathic mechanisms in pollen grains to habitat and longevity of pollen, and compare with fungal spores and their strategies. Cerceau-Larrival & Challe investigate the biological longevity of stored pollen, which is rapidly becoming an important issue in the efforts to maintain gene diversity among plant groups living in disappearing habitats. Storage involves not just maintaining the capacity to fertilize, but also retention of the integrity of biological structures (membranes, coatings) that are part of the recognition system.

Taylor & Zavada compare basic types of pollen wall structure of in-situ fossil pollen. Crane gives a perspective on form and function in wind dispersed pollen, starting with Paleozoic forms, and linking certain structures to wind velocities and climate changes. Walker & Walker present a detailed study of Early Cretaceous angiosperm pollen walls, and discuss evolutionary implications for angiosperm systematics. Their SEM and TEM analyses indicate that no less than 22 different types of pollen grains occur in just one core sample. Although many questions about the Late Cretaceous and Early Tertiary Normapolles remain unanswered, Batten suggests that the architecture of most forms is not as complex as reported previously. His SEM and TEM photographs allow differentiation between trivial characters and more basic architecture.

Tryon provides, in elegant SEM and TEM photographs, a comprehensive survey of Pteridophyta spores (in which the surface and wall structure obviously are not related to pollination or recognition systems); the perine is not normally preserved, which makes it appear that the morphologies of such spores are more limited than was actually the case. Lugardon discusses the ultrastructure of the exospore in pteridophyte spores; although written in French, this paper is well worth the effort of a careful reading. Knox & McConchie review the early development, and function, of compound pollen (***Rhododendron***, ***Acacia***, etc.). Ferguson & Pearce analyse the wide variety of pollen morphology in ***Bauhinia***, to see which structures are secondary developments related to pollination strategies, and which indicate phylogenetic relationship. Guinet studies, with similar goals, the pollen of ***Acacia***, a genus with more than 1200 species. Grayum correlates pollen morphology with pollination biology in Araceous plants specialised on beetles, and links his results with some implications for angiosperm evolution. Kress describes the fascinating exineless pollen, and pollination systems, of tropical ***Heliconia***. Pacini & Bellani study form and function of pollen in ***Lagerstroemia indica*** in which, within a single flower, two types of anthers produce pollen of two types, differing in shape, size, number of apertures, etc.

Continued on next page

Continued

I found many papers to make fascinating reading, as they contained information that bears, in an indirect way - but for that not any less fundamentally - on the understanding with which I will now look at my fossil pollen. However, this collection is not just of interest to the paleopalynologist; it may be even more relevant to pollen analysts, and to botanists interested in applying the particularities of pollen morphology to such things as phylogeny, ecological differentiations, etc. Relationships between pollen dispersal and their morphology are particularly well established.

I have no hesitation, therefore, to strongly recommend this book. It should be available at schools where any aspect of palynology is taught, or institutions where it is applied. All articles are generously illustrated with informative photographs, that show every necessary detail. This gives the reader a great advantage over the listeners who, in 1985, had to digest this information as the talk was given. One receives, comparatively speaking, much better value by buying the book, than by attending the original three-day meeting (although it must have been an inspiring occasion!). The hard-cover book is well bound; however, its price may not be an inducement to include it in the stressed budgets of these times.

Jan Jansonius, Calgary, Alberta

The Early Miocene Buffalo Canyon Flora of Western Nevada. by D.I. Axelrod. University of California Publications in Geological Sciences. Vol. 135. US$20.00

Like most of Dan Axelrod's work, the heart of this volume presents a snapshot of the inferred environment of a rich local flora that lived and died by a lake millions of years ago in what is now a parched landscape. We can only stand in awe at the precision of the suggested 10°C mean annual temperature, 3.0 months with mean temperature above 15°C, mean low monthly winter temperatures of 3.0°C, frost frequency of 613 h/yr, and 1280 m elevation. Reconstruction of the vegetation is equally precise, with three well-defined communities associated with particular slopes and valleys. This precision rests on Prof. Axelrod's vast experience with western Tertiary floras, on his environmental interpretations of the complex, much-faulted geology of the region, on his taxonomic assessments of the fossil leaves and ecological comparisons with purportedly related modern plants, and on the climatic concepts of H.P. Bailey. All of these are important, but you can't interpret a fossil flora without fossil plants and more than half of the volume is dedicated to a catalogue of the species present with photographs of cited specimens. This isn't Axelrod's favourite aspect of a fossil flora, so he tends to emphasize the "closest living relative" and his descriptions are somewhat sketchy, like the five lines devoted to each of his two new species of ***Ribes***. Likewise, the approach to synonymy that Axelrod shares with others of the "Berkeley school" would raise a few eyebrows among nomenclaturists. Even identifications of the fossils present a few howlers, such as the majority of figured leaves of ***Populus cedrusensis*** actually being ***Celtis*** (plate 5, figs. 7, 8 & 10), a genus not listed in the flora. In all fairness, one extant species of ***Populus*** was originally described as a hackberry by no less eminent a taxonomist than Adolf Engler himself. In his favour, Axelrod's insistence on large suites of specimens to represent each species, rather than the one or two kept and deposited in museums by his mentor, R.W. Chaney, is a major and lasting contribution to systematics of Tertiary plants. During the well-funded days of the sixties, he attacked Nevada fossil localities with a bulldozer and his extensive collections of this time have kept him busy ever since as one of the most visionary and productive North American paleobotanists. All in all, this is a characteristic production by Axelrod, with all of the virtues and faults that that implies.

J. E. Eckenwalder,
Department of Botany, University of Toronto.

Savannas, Biogeography and Geobotany.
by Monica M. Cole. Academic Press. 1986.

Although a welcome summary of the distribution and characteristics of savanna vegetation, this substantial volume is not quite the synthesis that one would have wished. Part of this failure is due to the diversity of vegetation embraced by the term savanna, a diversity from which Cole fails to exclude any segments -- anything that has been called savanna in the tropics is savanna here. Necessarily then, the unifying statements that may be made are such broad generalizations that they have little predictive value, leaving unanswered the question of why the savanna regions of the world are so varied. The model presented in fig. 1.1, for example, linking four controlling aspects of the environment to vegetation, makes too close a linkage among the corresponding spatial scales of each of the five components, while ignoring any linkages between components, except those operating through the vegetation. The author rightly points out, of course, that historical contingency in local vegetation development severely restricts the possibilities for creating globally deterministic vegetation models. Still, there are related environmental processes at work in the savanna regions of the world and corresponding scope for elaboration of theory. At the other end of the conceptual spectrum, most of the book is overwhelmed with details about individual savanna systems, rightly emphasizing the many that the author has worked on. These chapters abound in descriptions of differential distributions of plant species in relation to specific conditions in specific places. The delineation of communities and their distributions are the focus here, but the author clearly singles out the woody plants for consideration, briefly tolerating grasses in her savannas, but no other herbaceous plants. The author excels in these considerations of the edaphic control of community distribution, and the generalizations in this part of the book summarize these relations and those of climate for each region treated. Herbivory, fire, and anthropogenic effects are given much less discussion, perhaps because they are the topics most investigated by others. This book is admirable for what it does, but falls short of the broad framework for investigation and evaluation that the author hoped to deliver.

J. E. Eckenwalder
Department of Botany, University of Toronto

The Plant Press / La Presse Botanique

These pages are intended as a chronicle of news items about plants (or about CBA/ABC members) appearing in newpapers or in the popular science magazines. Contributions from your local newspapers are invited. Send the editor a clipping, photocopy or simply a note about the item and don't forget to indicate the source and date.

Ces pages sont consacrées aux nouvelles concernant les plantes (ou certains membres de l'ABC/CBA) qui paraissent dans les journaux. Les contributions en français sont également encouragées. Faites parvenir vos soumissions au rédacteur en chef ou au rédacteur adjoint, section francophone, et n'oubliez pas d'indiquer la source de l'article et la date de publication.

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CITES Problems

Botanists and respected nursery owners are among the worst smugglers contravening the CITES treaty, according to a report by "Traffic Europe", an organization which monitors the illegal trade in endangered plants. The report implies that most European dealers in species orchids have at one time or another contravened CITES regulations. Recent convictions which are cited as evidence involve a well-known French orchid nursery, which had more than 2000 illegal specimens of rare Philippine **Paphiopedilum** species, a respected London bulb dealer, who was caught smuggling endangered North American slipper orchids, and a botanist, who had hidden Chilean cacti in the bottom of her handbag. More disturbing is the report that the CITES treaty secretariat has evidence that Italian trade officials are involved in issuing false documentation for importing endangered plants.

Toronto Star, Aug. 29, 1992

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Berries Bomb ... Baby Bears Also

As an example of the importance of plants, bear biologists at Banff say that a failure of this year's berry crop will probably cause a poor bear cub crop next year. Warm May weather caused early flowering, but a killing frost destroyed almost the entire berry crop. Bears mate in spring, but implantation is delayed until November and is dependent on the amount of fat accumulated during the summer. The low fat buildup caused by the berry shortage will probably result in the abortion of many embryos this year.

Toronto Star, Aug. 29, 1992

Spud Club

Chris Holmes could probably sell refrigerators in the Arctic, but he is having too much success selling mail-order potatoes. Chris has found a market for potatoes such as Green Mountain, Irish Cobbler and other heritage varieties which disappeared from supermarket shelves long ago. He advertises his "Potato of the Month Club" in the New Yorker to attract gourmet cooks who absolutely must have something completely different. Some people laugh and think the Club is a joke, but certainly not Chris, who is able to sell his spuds for several dollars per pound.

Kitchener-Waterloo Record, Aug. 10, 1992

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Calling Air Defense Command!

U.S. agricultural researchers have shown that the entire corn plant responds to caterpillars attacking one leaf. Both damaged and undamaged leaves release terpenoids which attract parasitic wasps to deal with the grazers. Previous studies on several plants suggested that only damaged leaves gave off chemicals attracting predators

Toronto Star, Sept. 6, 1992.

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World's Healthiest Vegetables

Two of many candidates for this honour are broccoli and garlic. Broccoli is a low-cal source of fibre [1/2 cup of raw florets has 4 grams of fibre; only 20 calories] and is nutrient-rich. In particular, an average serving provides about 1/3 of daily Vitamin A and about 3/4 of the daily Vitamin C requirement. It also contains sulphoraphane, an anti-cancer compound [see April Bulletin]. Garlic has long been known to be good for your health, but terrible for interpersonal relationships. Recommended to scare off vampires [it must work - they have never bothered me], garlic has compounds which act to reduce the incidence of stomach and intestinal cancers, and which have been shown in rats to help prevent breast cancers. Garlic may also stimulate production of glutathione, an antioxidant, and have a role in reducing cholesterol. The tablet form of garlic, Kwai, helps prevent heart attacks and strokes by decreasing the clumping ability of platelets, thus preventing formation of blood clots on artery walls. Garlic can also play a role in the binding, detoxification and excretion of lead and mercury. So if you can stand the odour compound [allicin], about 4 cloves a day is recommended for best effect on your health.

Globe and Mail, June 26, 1992

Messy Desks Defended

Who could resist including this article, entitled **Messy desk is sign of a sophisticated mind**, which should make many of us feel a lot better about the appearance of our desks. At a recent meeting of the BAAS Mark Lansdale of Loughborough University said, "People with desks heaped with paper do not have untidy minds. Often they have devised effective personal systems for finding documents, using episodic memory to recall roughly where in the pile the wanted document lies." Lansdale is trying to develop a computer filing system based on the way human memory works (sort of a "messy desk database"). For example, every time a document is used it is recorded in an electronic diary (remembering when a document was last retrieved and later added to the pile is another way humans narrow down where in the pile a document is located). For all of you who get nagged about your messy desks, Lansdale remarked, "Tidying up can be a serious mistake, since it destroys the mentally ordered system. How often have you heard people say, 'I've just tidied up -- I can't find a thing!'."

Nigel Hawkes, The Times of London, Aug. 27, 1992

Red Tide

It's a poison that is "10,000 times more deadly than cyanide", shouts a headline on this full page devoted to problems with red tide dinoflagellates on the B.C. coast. The poison is saxitoxin, produced by the unicellular dinoflagellate, **Alexandrium tamarense**. Humans dread it because filter-feeding shellfish, such as clams, eat the dinoflagellates and concentrate the poison in certain tissues such as those in the siphon. Federal fisheries researchers, who monitor toxin levels in shellfish, say that since 1942 there have been 5 documented deaths from shellfish poisoning on the B.C. coast and more than 130 persons who have become very ill because of the toxin. The syndrome is called PSP [paralytic shellfish poisoning] because saxitoxin, a membrane channel blocker, destroys neuromuscular communication and causes death by paralysis of respiratory muscles. The newspaper article describes the experience of two victims who are thought to be the first persons to survive a lethal dose of saxitoxin [prompt artificial respiration was applied until they could be transferred to hospital] and describe their experience. The victims remained fully conscious (but this was not evident to the medical workers) and felt trapped in a body that could not make any movement. They could hear everything going on around them (including medical staff talking about their sex lives, the hockey game that was on in a room down the hall and the chances that the two victims would survive) but were powerless to make any response. The effects of the poison slowly wear off if victims can be maintained on a respirator for a couple of days, but it was still several days before the two men could regain complete control of their muscles. This was a very bad year for saxitoxin levels in B.C. shellfish, and most of the coastal shellfish harvesting was banned during the summer months. University of B.C. dinoflagellate expert, Max Taylor, speculated that the El Niño phenomenon and its effects on local climate conditions could have been involved in causing this year's outbreak of toxic dinoflagellates.

Margaret Munro, Vancouver Sun, Aug. 22, 1992

Barbara McClintock (1902-1992)

A true giant in the field of Genetics has died. Barbara McClintock is best known for her discovery of transposable elements (often called "jumping genes") in maize chromosomes. She made other important discoveries such as nuclear organizing chromosomes, and contributed to an understanding of crossing over. Her discoveries and her insight into the significance of her discoveries were far ahead of her [male] contemporaries, and she had to wait many years until her findings were verified on a molecular level. Her discoveries were even more remarkable, since they were made at a time when nobody even knew what DNA was. Born June 16, 1902, in Hartford, Conn., McClintock received her Ph.D. from Cornell in 1927. After brief research positions at Cornell University and the University of Missouri (she never taught), she went to the Cold Spring Harbor Laboratories in 1941 and remained there the rest of her research life. She typically worked 12-hour days, 6 days a week, and refused to have a telephone nearby until literally forced to in 1986. In 1944 she was elected to the US National Academy of Science and in 1945 she served as President of the Genetics Society. She received the National Medal of Science in 1970 and was the first recipient of the MacArthur Laureate Award (with an annual grant of $60,000 for life) in 1981. Finally, in 1983, she became the third woman to be awarded an unshared Nobel Prize [in the category of Physiology/Medicine]. That little tidbit should send you scurrying to the trivia books to identify the other two. James Watson, a colleague for several years, paid her perhaps the ultimate compliment by referring to her as "**one of the 3 M's of Genetics**" (the others are Gregor Mendel and T.H. Morgan),

Gina Kolata, New York Times, Sept. 4, 1992

FAIRCHILD TROPICAL GARDEN DAMAGED BY HURRICANE

Before sunrise on August 24, Fairchild Tropical Garden was devastated by Hurricane Andrew. Winds at over 165 mph [266 Kph] swept away many of the Garden's world-renowned botanical collection of palms, cycads and angiosperms from around the world. The largest tropical botanical garden in the continental United States was reduced to a tangle of broken trunks and leafless branches. After the initial shock, we now estimate that about 70% of the trees were blown over or snapped. Many can be pruned and replanting of toppled palms began within 5 days.

Luckily, there was only minor damage to our buildings. The research building was shuttered and solidly constructed. The 7,000 volume botanical library and the 65,000 sheet herbarium were saved. Of the seven greenhouses, two were totally destroyed, and the survivors have no glass. Some precious germplasm was lost or confounded when labels in pots were blown away. Lack of water for five days also damaged the nursery. Electrical generators are now pumping water, and the recovery is well under way. The Garden staff immediately began a botanical triage, selecting which trees should be cut, and which might survive replanting with the aid of cranes and braces.

From the start, we moved quickly to gather useful botanical specimens and information from the disaster. The crown buds of fallen palms are being set aside, dissected, and preserved. The number of leaf primordia within these massive apical meristems has never been determined for more than three or four species. Palm trunk samples and wood samples of exotic tropical trees are being collected. The surviving living collection will be an important source of information on the regeneration of a wide diversity of trees, shrubs and vines after traumatic injury -- a continuation of previous work on wound responses in vines and trees carried out here.

Many American and foreign botanists have used our collection for their research, many students have taken classes here, and many teachers use photographs of our plants in their classes. Several have already asked how they can help in the Garden's renewal. What we need now are funds to cover the costs [not fully insured] for the restoration program, new greenhouses, and shade cloth areas. We have expenses for electrical generators and clean-up supplies. Before long, a renewed effort will begin to collect documented replacement specimens and seed for the research collection.

The Garden's director, Dr. William McK. Klein Jr., stated, "Early Monday morning, August 24, 1992, the careful ordering of a tropical botanical garden of supreme beauty and richness was called to a halt and a 50 year process was reversed by the powerful entropic forces of Hurricane Andrew. Once the lives of staff who had suffered severe personal loss [7 joined in the ranks of the homeless and 9 endured severe damage to their homes] had started to recover -- by the morning of the third day -- we prepared for a monumental program of botanical triage.

"The long experience, knowledge and skill of the FTG came through magnificently to prove beyond any shadow of doubt that beautiful gardens mirror the beautiful staff and volunteers who love and tend them. The horticulturists, curators, plant recorders, gardeners, scientists and support staff set to work. The process of assessing damage and initiating restoration was under way by the end of the week. Food and water, cranes, generators, fungicide and countless tools for tending plants were arriving by the end of the week in a steady stream.

"A distress call was issued to colleagues in the horticultural and botanical community. The response was heart-warming and very reassuring to a staff that had suffered great personal loss as well as loss of their beloved garden. Many called to offer assistance and many were called: Bok Towers, Denver Botanical Garden, Disney World. Gemini Botanical Garden, Marie Selby Botanical Garden, Missouri Botanical Garden, N.Y. Botanical Garden, Morris Arboretum and Mounts Botanical Garden.

"While the palms are in a twisted heap of wreckage, the FTG has already started the process that will one day lead to a new flowering of this magnificent garden. Fortunately for all of us, the nurturing and sharing spirit, which is the true essence of a botanical garden, followed in the wake of a tropical storm called Andrew."

Contributions in any amount to the "Fairchild Restoration Fund" are considered as charitable donations for US taxes and will be applied to our immediate needs. The scientific and horticultural staff, along with the Board of Trustees, see this recent tragedy as an opportunity to fulfill FTG's mission: "To be the premier tropical botanical garden in the world." Please help if you can.

Dr. Jack B. Fisher, Chair of Botanical Sciences, Fairchild Tropical Garden, 10901 Old Cutler Road, Miami, FL 33156-4296.

MEETINGS - CONGRÈS

American Microscopical Society

The American Microscopical Society will be in Vancouver, B.C., **December 27-30, 1992**, for a joint meeting of several societies, including American and Canadian zoologists. Of interest to CBA/ABC members is a Symposium to be sponsored by the American Microscopical Society on **Low-cost Image Analysis for Light Microscopy in Teaching and Research.** For information, contact the Secretary of A.M.S.: **Julian P.S. Smith III, Dept. of Biology, Winthrop University, Rock Hill, South Carolina 29733. Tel.: 803-323-2111. FAX: 803-323-2347.**

British Phycological Society

The annual winter meeting of the British Phycological Society will be at the University of Wales, Swansea, **January 4-7, 1993.** For information, contact the local secretary: **Dr. Kevin Flynn, Biological Sciences, University of Wales, Swansea, Singleton Park, Swansea, U.K. SA2 8PP. FAX: 0792 295447.**

Extracellular Matrix Symposium

A symposium entitled **The Extracellular Matrix of Plants: Molecular, Cellular and Developmental Biology** will be in Santa Fe, New Mexico, **January 9-15, 1993.** For information, contact:: **Keystone Symposia, Drawer 1630, Silverthorne, CO 80498.**

Grassland Congress

Palmerston, New Zealand, is the site for the **17th International Grassland Congress, February 8-23, 1993.** Information may be obtained from: **Executive Secretary, 17th Grassland Congress Organizing Committee, Agronomy Department, Massey University, Palmerston North, New Zealand.**

Fungal Genetics

The **17th Fungal Genetics Conference** is to be held at Asilomar, an excellent conference centre on the Monterey Peninsula of California, **March 23-28, 1993.** For information, contact: **Dr. R.L. Weiss, Department of Chemistry and Biochemistry, U.C.L.A., 405 Hilgard Avenue, Los Angeles, CA 90024-1569.**

Landscape Ecology

Oak Ridge, Tennessee, is the site for a conference on **Pattern and Process in Landscape Ecology, March, 24-27, 1993.** For information: **Dr. Monica G. Turner, Environmental Sciences Division, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6038.**

Biochemical Society Symposium

Molecular Biology of Plants' Response to Environmental Stimuli is the title of a symposium to be held in Leeds, U.K., **April 1-2, 1993.** For information, contact: **The Biochemical Society, 59 Portland Place, London, U.K. W1N 3AJ.**

Tree Conference

Ecophysiology and Genetics of Trees and Forests is the title of a conference to be held in Viterbo, Italy, **May 23-29, 1993.** For information, contact: **J.G. Isebrands, USDA Forest Service, North Central Forest Experimental Station, P.O. Box 898, 5985 Hwy. K, Rhinelander, WI 54501.**

Tropical Phytogeography

What is new in Tropical Phytogeography? is the provocative title of a symposium in Paris, France, **July 6-8, 1992.** For information, please contact:: **Secretariat/Renseignements, Laboratoire de botanique tropicale, Université Pierre et Marie Curie, 12 rue Cuvier, 75005 Paris, France.**

Wind and Trees

Hurricanes Andrew and Iniki will undoubtedly be featured in presentations at a conference entitled **Wind and Wind-related Damage to Trees**, to be held in Edinburgh, U.K., **July 18-23, 1993.** Information: **C.P. Quine, Forestry Commission, Northern Research Station, Roslin U.K.**

Monocot Symposium

The Royal Botanical Garden, Kew, is sponsoring an **International Monocot Symposium** to be held at Kew, **July 19-23, 1993.** For information, write: **Kew 1993 Monocot Symposium, Royal Botanical Garden, Kew, Surrey, U.K. TW9 3AE.**

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