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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

EDITOR'S COMMENTS
COMMENTAIRE DE LA PART DU RÉDACTEUR

First I must apologize for the late publication of the January Bulletin, which resulted in the late arrival of the Calgary meeting brochure. As many of you found out during the flurry of telephone calls, FAXing and e-mail, late submissions of abstracts were permitted (and you still might be able to get one into the programme if you sweet-talk C.C.). We try our best, but there are always several things conspiring to delay our efforts, such as the late arrival of promised contributions or, as in January, the extra time needed to enter a flood of new memberships and address alterations into the Association's database. The latter problem seems to be a recurring one, and it might be better in future to actually schedule the publication of the first issue of the year in February (perhaps move all issuing dates back one month?). I will be bringing this problem up at the Calgary meeting.

Take note of the early submission deadline for the next issue (June 15; earlier if possible), which will allow me time to finish the preparation of a lot of the pages before I go to Calgary. Jean and I will be travelling to Vancouver after the AGM (this will be my father-in-law's 80th year on this insignificant bit of space debris) and I will be going to the Protistology meeting in Halifax in August. Somewhere in this time period I hope to get the July Bulletin finished, printed and mailed out. However, knowing my previous record for tardiness, you might not receive the issue until the last part of August. I'll do my best.

Calgary House & Garden Tour

I received a brochure from the Alberta Ballet which describes a fund-raising event that some of you might wish to participate in on either June 25 or 26 (just

before our Calgary meeting). Each afternoon (from noon to 5:00) the Alberta Ballet is organizing a guided bus tour to view "six spectacular private homes and gardens" in Calgary. The tour, which costs $50.00, begins at the Nat Christie Centre (home of the Ballet) in downtown Calgary. It includes a tea lunch before the escorted tour and a sumptuous colour brochure describing each house. If you are interested in purchasing tickets (credit cards accepted) or if you would like to obtain more information, call Tracy at the Alberta Ballet Box Office, 403-245-4549. The ticket deadline is June 10th.

Biodiversity Issues

Recently our President received a letter from the President of the Entomological Society/La Société d'entomologie du Canada regarding a "Resolution on Biosystematics and Biodiversity" which was passed in October 1992 by the Scientific Committee for the Biological Survey of Canada. This resolution (see summary of recommendations listed below) has already gone to Federal advisory committees on biodiversity, the Parliamentary Standing Committee on the Environment and the National Round Table on the Environment. This is advance warning that this resolution will be discussed at the Board of Directors Meetings and the Annual General Meeting in Calgary. Specifically, we will be asked whether we support the resolution and whether we would actively participate in an intersocietal working group on biodiversity (mandate and logistics still to be worked out - probably operating mostly via e-mail). We would be asked to appoint 3 of our members to be on this biodiversity working group.

The resolution (leaving out all the "whereas" stuff in the preamble) recommends to those formulating Canada's national biodiversity strategy:

1. The development and implementation of a national strategy for training highly qualified personnel in biosystematics.

2. The development and implementation of a national strategy for supporting research in biosystematics.

3. The development and implementation of a national strategy for collection infrastructure, its maintenance, development and utilization.

4. The development and implementation of a national strategy for the production of appropriate literature, data bases and analytical tools.

Anyone who is not planning to go to the Calgary meeting and who wishes to express an opinion on this resolution should send his or her comments to the President of CBA/ABC (address on back page of this Bulletin) before June 15th, 1994.

Enclosures with this Issue

Mailed with this issue of the Bulletin you should find the Treasurer's receipt for your 1994 dues. There is also a survey sheet provided by Tim Dickenson which is related to Tim's Workshop at the Calgary meeting. For those of you who have not renewed your membership for 1994, I must say good-bye. In accordance with CBA/ABC By-Laws, your name will be removed from the Treasurer's database unless your renewal is received before the end of June. In case you have misplaced your renewal form (or "filed" it), we have enclosed another form.

Reviewers Wanted

The following books are looking for volunteers who would like to write a review for the Bulletin.

Adventitious Root Formation in Cuttings. (by Davis, Haissig & Sankla). Dioscorides Press, 1988.

Aspects of Tropical Mycology. (by Isaac, Frankland, Watling & Whalley). British Mycological Society (Cambridge UP), 1993.

Carbon Partitioning within and between Organisms. (by Pollock, Farrar & Gordon). Bios Scientific Publ., 1992.

Introduction to Plant Population Biology. (by Silvertown & Lovett Doust). Oxford UP, 1993.

Post-Translational Modifications in Plants. (by Battey, Dickinson & Hetherington). Cambridge UP, 1993.

Saltmarsh Ecology. (by Paul Adam). Cambridge UP, 1990.

Have a great spring, everybody! I'll see you in Calgary.
Joe Gerrath, Editor

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Summary of Minutes
CBA/ABC Executive Conference Call
Monday, March 14, 1994

Participants: C.C. Chinnappa, Jean Gerrath, Joe Gerrath, Christian Lacroix, Usher Posluszny, Vipen Sawhney, Keith Winterhalder

1. **Meeting called to order** (Posluszny) at 12:06 p.m. EST.

2. **MOTION** (Chinnappa, Joe Gerrath): To accept the minutes of the August 5, 1993 incoming executive meeting as circulated. [ACCEPTED]

3. **Business Arising:**

- **Archives**: Archival material not already in the National Archives will be transferred to Guelph, where the Editor will keep it until a new Archivist is found.

- **Calgary seed money**: The Treasurer will supply Annual Meeting seed money of $1200 to C.C. Chinnappa.

4. **Reports of Officers:**

4a. **Past President (Paul Catling)**: The circulated report noted that the Nominating Committee has received no nominations from members for positions open. The Science Policy Committee has been active regarding the Canadian Museum of Nature situation.

4b. **President (Usher Posluszny)**: The President reported that there may be problems with compatibility of the new computer system at the Canadian Museum of Nature and plant data bases. A call was issued for Board nominations from the executive, since none have been received from members.

4c. **President-Elect (Keith Winterhalder)**: Abstracts for this year's Cinq-Mars competition are being received. The judging committee has a full slate of names.

4d. **Vice-President (C.C. Chinnappa)**: Everything regarding the Calgary meeting planning and program is going well. Late submission of abstracts (to end of March) is being allowed because of the delay in the January Bulletin.

4e. **Secretary (Jean Gerrath)**: We are still receiving "herb letters" (we are listed as a supplier of herbs and herb information in the Readers' Digest gardening book). They are being answered as best we can.

4f. **Treasurer (Christian Lacroix)**: Our bank balance to date:

General Account	$10,741
Savings (this years donations in parentheses)	
Ecology	1,221 (45)
Macoun	1,693 (760)
Weresub	320 (115)
Steeves	844 (844)
Porsild	1,914 (68)
Capital Accounts (GICs) [approx. yield this year]	
General	20,000 [ca. 1,000]
Macoun	5,700 [ca. 400]
Weresub	1,650 [ca. 100]
Term Deposits:	
General	12,400
Weresub	17,800

Membership: 239 members as of meeting date, including 45 new members (about one third of membership are students). 49 members not renewed; reminders sent.

4g. **Editor (Joe Gerrath)**: The April Bulletin is progressing and will include a update listing new members and address changes. A By-Laws booklet (format: 8 1/2 x 11", folded) is being prepared for sending to all new members. Because of the many new members, address changes and increased number of members listing E-mail addresses, a new directory of members will be prepared for the October mailing.

5. **Future Meetings:**

1995 - University of Guelph. June 24th to 27th [Saturday to Tuesday]. The Banquet will be on Tuesday.

1996 - University of P.E.I., Charlottetown. Probable dates (still to be confirmed): June 23rd to 26th.

1997 - Montréal. This will be a joint meeting with BSA. Possible participation of AIBS also. Local committee: Luc Brouillet, Denis Barabé, Dwight Beebe.

1998 - Saskatoon? Vipen Sawhney will investigate.

1999 - The next Botanical Congress will be in St. Louis. We may meet there.

6. **Appointment of Committee Chair:**

MOTION (Winterhalder; Chinnappa): That Heather Stewart be appointed as chair of the Conservation Committee. [ACCEPTED]

It was agreed that Tim Dickinson should co-chair the Development Committee (to deal with financial aspects).

7. **Nominations for Awards (Posluszny)**: There are nominees for both categories of the Lawson Medal, but none for the Elliott Award. There is only enough money this year to award one Macoun Bursary.

8. **Other Business:**

8a. **Entomological Society letter (Posluszny)**: the President received a letter asking for support of CBA on biodiversity resolutions. It will be brought forward for discussion at the Annual Meeting.

8b. **CSPP and CFBS (Jean Gerrath)**: CSPP is considering withdrawing from CFBS, and have asked us for a description of our experiences with them, which we have provided.

8c. **Canada-Wide Science Fair (Winterhalder)**: To be held in Guelph this year. Posluszny will act as judge and presenter of our award.

8d. **Amateur Botanists (Winterhalder)**: Concerns have been expressed by botanists who act as consultants that we don't cater to their needs, and to those of amateurs. Perhaps their interests are better matched to natural history societies. Any suggestions for what to do would be welcome.

9. **MOTION** (Jean Gerrath, Sawhney): The the meeting be adjourned. (ACCEPTED). **The meeting was adjourned** at 1:27 pm EST.

Jean Gerrath, CBA/ABC Secretary

RICHARD CAYOUETTE (1914-1993)
agronome-botaniste / agronomist-botanist

Richard Cayouette est décédé à Lévis, Québec, Canada, le 8 octobre 1993 à l'âge de 79 ans. Agronome de formation, il s'est fait connaître principalement comme botaniste et conservateur de ***l'Herbier du Québec*** (**QUE**), et par ses travaux sur les mauvaises herbes et sur la flore de certaines régions du Québec.

Né à Sainte-Justine, Dorchester, Québec, le 26 février 1914, il a reçu son baccalauréat en sciences agronomiques à l'Institut Agricole d'Oka en 1938 et y a étudié la taxonomie des plantes avec le Père Louis-Marie, auteur entre autres de la ***Flore-Manuel de la Province de Québec***. En 1938, il entreprend des études doctorales en génétique des plantes à l'Université Cornell, Ithaca (États-Unis), mais doit les interrompre et retourner au Canada en raison de la guerre. De 1948 à 1950 il a fait des travaux sur la bio-écologie des épervières introduites (***Hieracium*** spp.), sous la direction d'Yves Desmarais de l'Université Laval, Québec. Plus tard, en 1965-66, il a étudié la floristique des plantes du Canada avec Bernard Boivin.

Il a travaillé pour la Division des Mauvaises Herbes du Ministère de l'Agriculture, à Québec, de 1942 jusqu'à sa retraite en 1979. Sa carrière fut pratiquement divisée en deux périodes. De 1942 à 1960, il pratique surtout l'agronomie et étudie la biologie, l'écologie et la répression de mauvaises herbes telles que ***Tragopogon pratensis***, ***Veratrum viride***, ***Polygonum cuspidatum***, ***Taraxacum officinale***, ***Rhus radicans***, ***Hieracium*** spp., etc. Il prépare des publications sur les herbicides et sur de nouvelles mauvaises herbes pour le Québec. Il s'implique à fond dans plusieurs sociétés d'agronomie, comme directeur, secrétaire, président ou éditeur des comptes rendus annuels. Il publie en collaboration des catalogues de noms vernaculaires et scientifiques de mauvaises herbes pour le Québec (avec M. Ferron) ou le Canada (avec J.F. Alex et G.A. Mulligan).

À partir de 1960, ses projets de recherche touchent davantage à la floristique et à la phytogéographie. Il fait de nombreuses herborisations dans l'est du Québec, la Gaspésie, la région de Québec et au Saguenay-Lac Saint-Jean. Il a récolté autour de 11 000 spécimens, dont des centaines de doubles, déposés à l'herbier QUE. Lorsqu'il est nommé responsable de cette collection en 1942, l'herbier totalise à peine 2 200 spécimens. Il avait fait grimper ce nombre à 88 000 en 1979, au moment de sa retraite, résultat de ses propres herborisations, de celles de ses collègues, d'échanges soutenus et de ses efforts pour intégrer des herbiers locaux et historiques.

Son travail majeur fut la ***Flore du Saguenay***, une région du Québec boréal située au nord du fleuve Saint-Laurent et incluant la région du lac Saint-Jean jusqu'aux monts Otish, soit un territoire qui couvre à peu près 16% de tout le Québec. Même si de nombreux botanistes et écologistes

Richard Cayouette died at Lévis, Québec, Canada, on 8 October 1993, at the age of 79. Trained as an agronomist, he is mostly known as a botanist and former curator of the ***Herbier du Québec*** (**QUE**), and by his work on weeds and regional floras of Québec.

Born in Ste-Justine, Dorchester Co., Québec, on 26 February 1914, he received his B.Sc. in agronomy at the Agricultural School of Oka in 1938 where he studied plant taxonomy with his mentor, Father Louis-Marie Lalonde, author of ***La Flore-Manuel de la Province de Québec***. He began work on a Ph.D. in plant genetics at Cornell University, Ithaca, U.S.A., in 1938, but had to come back to Canada because of World War II. From 1948 to 1950 he studied bio-ecology of introduced hawkweeds (***Hieracium*** spp.) with Yves Desmarais of Laval University, Québec, and later (1965-66) floristics of Canadian plants with Bernard Boivin.

He worked for the Weed Division of the Provincial Ministry of Agriculture in Québec City from 1942 until his retirement in 1979. His career was mostly divided into two parts. From 1942 to 1960 he worked as an agronomist, studying biology, ecology and control of various weeds such as ***Tragopogon pratensis***, ***Veratrum viride***, ***Polygonum cuspidatum***, ***Taraxacum officinale***, ***Rhus radicans***, ***Hieracium*** spp., etc. He published on herbicides and on new weed introductions for the province, and was active in various provincial and national agronomic organizations (as director, secretary, president, or editor of annual proceedings of research papers). He co-published catalogues of common and scientific names of weeds for the province of Québec (with M. Ferron) and for the whole of Canada (with J.F. Alex and G.A. Mulligan).

After 1960 his research projects were mostly on floristics and phytogeography. He botanized extensively in eastern Québec (Gaspé, around Québec City, Saguenay-Lake St-John area). His botanical contributions included about 11,000 collections of plant specimens, with hundreds of duplicates, the first set preserved at QUE. When he became curator in 1942 the collection had 2,200 specimens; it numbered 88,000 in 1979 when he retired, as a consequence of his collecting effort and that of staff members, his exchange program, and his contribution in amalgamating some local and historic collections.

His major contribution was ***La Flore du Saguenay*** (situated in boreal Québec, north of the St-Lawrence River, including the Lake St-John region north to Otish mountains). This vast area averages 16% of the whole territory of the province of

canadiens, américains et européens y ont herborisé (comme P. Kalm., A. Michaux, L. Provancher, O. Brunet, C.G. Pringle, E. Brainerd, E.J. Hill, J. Macoun, H. St.-John, F. Marie-Victorin, G.L. Stebbins, J. Rousseau, I. Hustich, B. Boivin, L. Cinq-Mars, P. Dansereau, S. Brisson, etc.), la flore de cette région demeure peu connue et peu diffusée. Il y a fait d'importantes découvertes comme des stations d'herbe à la puce (***Rhus radicans***) à leur limite nord-est de répartition. Il publie de 1960 à 1984 et prépare des documents de synthèse entre 1971 et 1980. Il projetait de compléter cette flore à la retraite mais de sérieux problèmes de santé dès 1979 ont compromis cette entreprise. Environ le tiers de cette imposante étude phytogéographique est actuellement prête à être publiée.

La compilation de ses écrits révèle près de 200 titres dans les domaines de l'agronomie et de la botanique. Un peu moins des deux tiers de ses publications sont de nature botanique ou floristique, et l'autre tiers touche l'agronomie. Parmi ses travaux floristiques on compte la flore du comté de Lévis (avec D. Doyon, 1978) et diverses nouvelles mentions pour le Québec, le Canada et même l'Amerique du Nord (ex. ***Potentilla thuringiaca***). Il a étudié la biologie, la variation et la répartition de plusieurs groupes de plantes (incluant les mauvaises herbes), de familles (ptéridophytes, liliacées, asteracées) ou de genres (***Potentilla***, ***Trillium***, ***Epipactis***, ***Carex***, ***Linum***, ***Cirsium***, etc.). Ses autres travaux comprennent des rapports scientifiques ou techniques, des bibliographies, des index historiques (ex. sur J.M. Macoun), des notes sur les herbiers, des travaux de vulgarisation pour le grand public ou les jeunes naturalistes.

Il a participé à la fondation de l'ABC en 1965 et à l'organisation du 9^{e} Congrès International de Botanique à Montréal en 1959 (dans la section de botanique agricole). Il est membre à vie et ancien président de la Société linnéenne de Québec.

Deux noms de plantes honorent sa mémoire. Pour souligner les travaux de mon père sur les épervières, Ernest Lepage nommait en 1967 une variété d'hybride en son honneur, ***Hieracium*** x***stoloniferum*** var. ***cayouetteanum***. La même année Bernard Boivin honorait les deux Cayouette botanistes en décrivant x***Agroelymus cayouetteorum***, un hybride intergénérique de graminées découvert par le fils au Saguenay et étudié par le père.

Ses collègues et ses amis retiendront ses grandes qualités, sa patience, son calme, son honnêteté, son sens du devoir, sa disponibilité et son humour très subtil qui cachait une grande timidité. Il laisse dans le deuil son épouse Corinne Hudon et moi-même, son fils unique. Il fut mon premier professeur de botanique et a grandement influencé ma carrière.

Jacques Cayouette, botaniste
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Québec. Even if many Canadian, American and European botanists and ecologists have collected there (e.g. P. Kalm., A. Michaux, L. Provancher, O. Brunet, C.G. Pringle, E. Brainerd, E.J. Hill, J. Macoun, H. St.-John, F. Marie-Victorin, G.L. Stebbins, J. Rousseau, I. Hustich, B. Boivin, L. Cinq-Mars, P. Dansereau, S. Brisson, etc.), the flora of this region remained unknown and unpublished. He made important discoveries in the area (such as remote populations of ***Rhus radicans*** at its northeastern limit) and published various papers from 1960 to 1984. A few catalogues and synthesis documents were produced from 1971 to 1980 but they remain unpublished. He had planned to complete his flora after his retirement but, soon after, health problems slowed him down. Part of his work is still unfinished and less than half of this huge project is actually publishable.

He prepared about 200 papers on different agronomic and botanical aspects and subjects. About two thirds are of floristic and botanical nature, and the other third pertinent to agronomy. Among his floristic papers are the flora of Lévis Co., Québec, co-authored with D. Doyon (1978), and various new plant records for Québec, Canada, and even North America (e.g. ***Potentilla thuringiaca***). He studied biology, variation and geographic distribution of various groups of plants (including weeds), families (Pteridophytes, Liliaceae, Asteraceae) and genera (***Potentilla***, ***Trillium***, ***Epipactis***, ***Carex***, ***Linum***, ***Cirsium***, etc.). Other papers are scientific and technical reports, bibliographies, indices of historical nature (e.g. on J.M. Macoun), notes on herbaria, publications for the public and for young naturalists.

He was a founding member of the Canadian Botanical Association (in 1965), member of the organizing committee of the IXth International Botanical Congress (Agricultural Botany) held in Montréal in 1959, and a past president and life member of the Québec Linnean Society.

Hieracium x***stoloniferum*** var. ***cayouetteanum*** E. Lepage and x***Agroelymus cayouetteorum*** B. Boivin were named in his honour, the latter being collected by the son and studied by the father.

His friends and colleagues will remember his great patience, coolness, integrity, clear judgement, availability, and sense of duty. His subtle sense of humour was hiding some timidity. He is survived by his wife Corinne Hudon and I was his only son. My father was my first teacher in botany and much instrumental for my career.

Jacques Cayouette, botanist
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MEMBERSHIP LIST UPDATE

The following list will serve as a temporary update to the membership listing published in the November 1993 Supplement. This list contains:

- ✿ many new members who have joined (welcome to all!),
- ✿ several lapsed members who have rejoined (welcome back as members!),
- ✿ some members who have moved (their new addresses are listed below), and
- ✿ a few members who were missed in preparing the last membership address supplement.

I must congratulate those at the University of Calgary who made a concerted effort to sign up anything that moved as new members of CBA/ABC. We trust that the whip scars will have healed by the start of the Annual Meeting.

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CONFERENCE REPORT

Plant Biology at Atlantic Universities Undergraduate Conference

The **25th Atlantic Universities Undergraduate Biology Conference** was held March 4-6, 1994 at the University of Prince Edward Island in Charlottetown. This is an annual conference sponsored by APICS (Atlantic Provinces Council on the Sciences). Approximately 40 presentations were made by undergraduate students, and this was divided almost equally between oral and poster presentations. The conference was attended by more than 125 undergraduates (including 35 from the University College of Cape Breton).

Plant biology had a reasonable representation. About 25% of the presentations comprised plant, algal and fungal papers. There was a wide diversity of topics and approaches represented. This ranged from traditional, herbarium-based taxonomic studies of ***Euthamia*** (Gilda Pronich, Dalhousie) to molecular approaches to studying genetic heterogeneity in a fungus (Joyce Chew, St. Mary's). Other plant biology presentations included the description of mathematical modelling of morphogenesis in ***Scirpus longii*** (Noel Clancy, Mount Saint Vincent), ultrastructural studies on an insect pathogen, ***Entomophaga aulicae*** (Debbie Jenkins, Memorial), characterization of a fungal pigment in ***Stachybotrys atra*** (Carol-Anne Osborne, Saint Mary's), characterization of the cytoskeleton in the diatom, ***Thalassiosira*** (Naomi Machell, Dalhousie), and detection of plant growth regulators in the brown alga, ***Ascophyllum nodosum*** (Stephanie Smith, Dalhousie). There was even some applied plant biology with a presentation on the effects of different synthetic and organic fertilizers on plant growth under different recycling regimes (Gregory Sharam, Dalhousie).

Second place for the oral presentations was awarded to Karen MacDonald (St. Francis Xavier) for her paper on the interactions of the brown seaweed, ***Ascophyllum nodosum***, with its endophytic fungus, ***Mycosphaerella ascophylli***. Karen argued that this organism could be considered as a new type of lichen.

A number of papers also dealt with plant/animal interactions, including studies of insects associated with ***Sarracenia*** (Loretta Hardwick, University of Prince Edward Island), and the life cycle of the blueberry flea beetle (Sylvie Bourque, Université de Moncton).

The keynote address also involved a botanical theme and was made by Dr. Joseph Shorthouse (Laurentian University) who gave an eloquent talk: **"For the love of a rose: gall wasp-rose relationships across Canada"**.

Undergraduate research has traditionally been very strong in Atlantic Canada universities, and this continues to be the case today. For most students this meeting provided the first experience of an academic conference. The quality of the work and the excitement that it generated suggests that for many of these students it will become more routine as they progress into graduate school. Undergraduate research in plant biology is alive and well in Atlantic Canada; hopefully funding cutbacks will not lead to its demise.

David Garbary, St. Francis Xavier University

FNA PROJECT BEARS FRUIT

The Flora of North America Project, through Oxford University Press, has just published the first two volumes of a projected 14 volumes which should appear over the next 12 years. The FNA project is a collaborative, binational effort of more than 30 major botanical institutions to compile the first comprehensive description of all of the approximately 17,000 species of vascular plants growing spontaneously in the United States, Canada and Greenland. The Missouri Botanical Garden serves as the organizational centre of the project and the assistant director of the MBG, Dr. Nancy Morin, serves as the convening editor.

The project draws on the expertise of botanists throughout the world. Specialists are being asked to write treatments for the groups that they study, and these treatments are being thoroughly reviewed by both an editorial committee and other botanists, particularly by those familiar with the plants as they grow in the wild. The entire Flora will be written and reviewed by a large segment of the systematic botanical community and will draw on all of its resources. The Flora will be useful not only for theoretical work in taxonomy, ecology and other plant studies, but also for practical use and general reference in biology, conservation, wildlife management, forestry, horticulture, environmental sciences and agriculture.

Two other massive collaborative floristic projects involve the MBG, Flora Mesoamericana and Flora of China. The 7-volume Flora Mesoamericana, a joint effort of the MBG, UNAM (National Autonomous University of Mexico) and the British Museum, Natural History, will describe, for the first time, all of the vascular plants of Central America. The first two volumes (on monocots and ferns) should be ready for publication this year by UNAM. This will be the first major regional flora written in Spanish. The Flora of China will translate, revise and condense the massive (projected 80 volumes in 125 books) Chinese-language ***Florae Republicae Popularis Sinicae***. The first of a projected 25 volumes is slated for publication in 1994.

Central to these floristic studies is TROPICOS, the botanical database of the MBG. This database now contains about 630,000 of the million published plant names and contains information on more than 130,000 type specimens, more than 163,000 distribution records and nearly 254,000 synonyms.

This information was compiled from a public relations package recently received from the MBG - Editor

CANADIAN BIODIVERSITY: A GUIDE TO CURRENT BOTANICAL SPECIALISTS AND LITERATURE

Preparation of this publication, giving complete literature citations to all or most publications of selected Canadian botanists, was initiated a year ago. Publications listed are restricted to works on or at least indirectly related to vascular plants and bryophytes, and deal with any aspect of biodiversity in the broadest sense, particularly ecology, environmental studies, systematics, phytogeography, and germplasm variation of both wild and cultivated plants. Also included are unpublished reports, especially of biological consultants, provided that they are deposited in libraries, and therefore readily available. To date, about 250 invitations have been issued to Canadian scientists and bioconsultants, and about 100 bibliographies (ca. 300 pages) have been completed. This reference guide should serve to prevent duplication of effort, stimulate cooperation with available experts, and identify strengths and weaknesses of biodiversity research in Canada. If any of your publications seem relevant, and you have not yet received an invitation to contribute your bibliography, please contact Ernie Small or Jacques Cayouette at: **William Saunders Building, C.L.B.R.R., C.E.F., Agriculture and Agri-Food Canada, Ottawa, Ontario, K1A OC6.**
Telephone: (613) 996-1665, FAX: (613) 943-0953,
E-mail: SMALLE@NCCCOT2.AGR.CA

BIODIVERSITÉ CANADIENNE: RÉPERTOIRE DES BOTANISTES ACTUELS ET DE LEURS PUBLICATIONS

Il y a un an déjà nous mettions sur pied cette publication comprenant les citations complètes des publications d'un groupe choisi de botanistes canadiens. La liste comprendra les travaux reliés directement ou indirectement aux plantes vasculaires et aux bryophytes, et ceux qui touchent certains aspects de la biodiversité au sens large, comme l'écologie, les études environnementales, la systématique, la phytogéographie et la variabilité génétique des plantes sauvages ou cultivées. Nous inclurons également les rapports non publiés, particulièrement ceux des consultants, en autant qu'ils soient disponibles dans des bibliothèques consultables. Jusqu'à maintenant nous avons rejoint près de 250 collègues canadiens et avons reçu et édité une centaine de bibliographies (environ 300 pages). Ce guide de références servira à prévenir la duplication des efforts, à stimuler la coopération avec les experts disponibles et à identifier les points forts et les faiblesses de la recherche actuelle en biodiversité au Canada. Si vous n'avez pas encore reçu d'invitation personnelle à contribuer et que vous auriez des travaux pertinents à soumettre, contactez Ernie Small ou Jacques Cayouette à: **Édifice William Saunders, C.R.T.R.B., F.E.C., Agriculture et Agro-alimentaire Canada, Ottawa, Ontario, K1A OC6.**
Téléphone : (613) 996-1665, Télécopieur: (613) 943-0953,

AUCTION SALE

This year CBA/ABC is embarking on something a bit different in the way of fund-raising for the Macoun Bursary. We will hold an auction sale during the Barbecue on Tuesday, June 28, at the Rafter Six Ranch, Kananaskis. It will be held while we are waiting for the food. In order to make this a success we need items of botanical interest for our members to bid on. These would include books (new and old), perhaps reprints, artwork of a botanical theme, perhaps plant fossils, and any other items you think fellow members might be interested in. Members who would like to donate such items are asked to bring them to the Calgary meeting, and contact either Jean Gerrath or Tim Dickinson at the meeting. This event promises to be lively, as well as a good opportunity to raise money for a worthy cause.

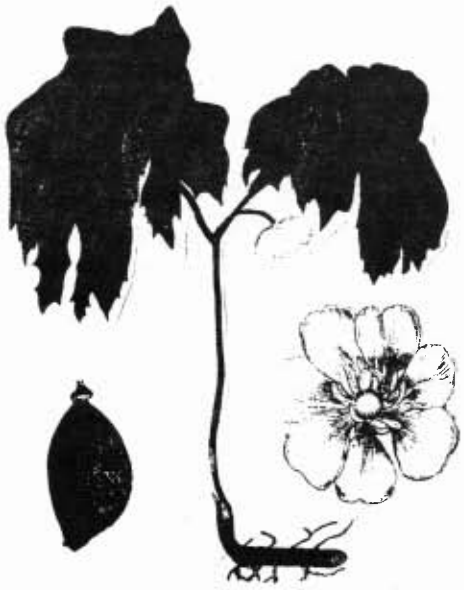
Jean Gerrath, Dept. of Horticultural Science, Univ. of Guelph

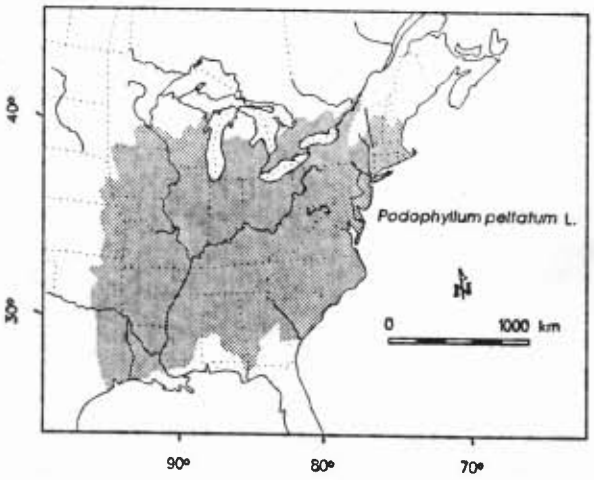
Poorly known Economic Plants of Canada. - 2. May-apple, *Podophyllum peltatum* L.

P.M. Catling & E. Small
Biological Resources Division, CLBRR
Agriculture Canada, Ottawa, ON K1A 0C6

Common names: English: American Mandrake (not to be confused with the European Mandrake, ***Mandragora officinarum***, of Europe), Ground-lemon, Hog-apple, May-apple, Wild Citron, Wild Jalap, Umbrellaplant. French: citron sauvage, citronier, podophyle pelté, pomme de mai.

An unusual plant up to 60 cm tall, May-apple has one to three umbrella-shaped and deeply lobed leaves. The stems are produced from branched underground rhizomes, and sometimes form circles (fairy rings) like some mushrooms and ferns. The solitary, waxy-white, nodding flowers are 2 to 4 cm across. Flowering occurs in May in the north and the yellow, oval or roundish fruit, 2 to 4 cm across, ripens in July and August, turning from green to yellow. Rarely, plants may have a cluster of fruits (forma ***polycarpum*** Clute). Plants with pink flowers and maroon or red fruits (forma ***deamii*** Raymond) also occur rarely.





May-apple occurs throughout the eastern United States from southern New England to southern Minnesota south to eastern Texas and northern Florida. In Canada it is found throughout much of southern Ontario south of the Canadian Shield and in the eastern townships of Québec. It is frequent over much of its Ontario range, occurring in deciduous woodlands, forest edges, thickets and meadows. In Québec it is rare and occurs mostly along the upper St. Lawrence River. May-apple has persisted at various points where it has been introduced north of the natural range limit shown on the accompanying map, such as in the Gatineau Hills north of Ottawa and in Nova Scotia.

May-apple is one of several eastern North American plants that have very close relatives in eastern Asia. The similarity between the deciduous forests of eastern Asia and eastern North America, along with other evidence, suggests that a temperate deciduous forest, the arcto-tertiary flora, formed a continuous band around the northern hemisphere 15 to 20 million years ago. This band was later fragmented by climatic cooling, uplift of mountains with isolation and rainshadow effects, and continental glaciations, the two remaining fragments surviving in eastern Asia and eastern North America. The Asian relative in this case is the Himalayan May-apple, ***Podophyllum hexandrum***, a plant with shiny mottled leaves, erect, conspicuous and often pink flowers, red fruits and a clumped instead of spreading habit.

White moths and bumblebees are the likely pollinators. Canadian researchers have reported that the flowers do not produce nectar and that fruit and seed set is greater

where May-apple plants grow close to flowering Wood Betony (***Pedicularis canadensis***) which produces nectar prolifically. The Wood Betony is a so-called "magnet species", attracting pollinators and thus facilitating the pollination of flowers of other species growing near it. May-apple fruit is eaten and dispersed by mammals, birds, and Eastern Box Turtles.

EXTREME CAUTION is recommended in the use of and handling of May-apple, and we **RECOMMEND THAT IT NOT BE USED DURING PREGNANCY.** The roots as well as the unripe fruit, seeds and leaves can be fatally poisonous. Fragments of root flicked into the eye during grinding can cause extreme swelling, internal bleeding, severe pain and temporary loss of sight. Even handling the rhizomes can cause dermatitis.

Although the ripe berries were eaten extensively by North American Indians, they used other parts of May-apple as a poison, a purifying medicine to expel parasitic worms, and in the treatment of certain cancers. The whole plant was boiled by the Menomini and the liquid then used as an insecticide on recently introduced potato plants. Since it was utilized by Indians, probably for thousands of years, it was possibly cultivated and undoubtedly dispersed by them. A number of sites in Canada near the northern limit are associated with former Indian habitation. One of the earliest observations of the plant at an Indian site on the northern range limit was that of Champlain, who in 1619 found the Hurons of Cahiagué (northern Simcoe County, Ontario, then one of the largest settlements in Canada with 5000 inhabitants), to be eating the berries. Champlain noted that they were "plentiful and extremely good to eat".

The early settlers made jam and preserves from the ripe fruits, and they cultivated the plant to a limited degree. In 1885 Canadian pioneer botanist Catharine Parr Traill reported that most Canadian physicians were using May-apple root in the treatment of complaints of the liver. This use continued long after, for example, in the well known Carter's liver pills. Although Harvard botanist Asa Gray described the fruit as "eaten by pigs and boys", most current books on edible wild plants report an agreeable taste. It must be remembered that the unripe fruits are not only bitter, but poisonous. The fully ripe fruits are claimed to make excellent jellies and marmalades. Drinks made by admixture with lemonade or Madeira wine are locally popular.

"Toxicologists may deem it an error,
To imbibe of May-apple Madeira.
But if the list was complete
Of the toxins we eat,
Perhaps we would all die of terror."
(*Courtesy James A. Duke*)

The root of May-apple is the source of the powdered mixture of resins referred to pharmaceutically as *Resina Podophylli*, resin of podophyllum or simply podophyllum. Since its discovery by Europeans, this poisonous plant has had many medicinal uses, especially internally as a digestive medicine, but also externally in treatment of sores and skin problems. Of particular interest is the fact that both the North American and the Asian May-apple contain anti-cancer agents. Phyllotoxin, like colchicine, arrests cell division through an effect on RNA and DNA synthesis during interphase. The drugs teniposide and etopiside (also known as vepeside) from the cultivated Asian species are widely used to treat cancers. In 1990 the market for these drugs was worth over 100 million dollars. Both the Eurasian and the North American May-apples are an important source of anti-cancer drugs, on a par with Madagascar Periwinkle and species of Yew.

May-apple is currently an ingredient of prescription drugs sold in the United States and is used in at least 7 Canadian drug products. The supply is obtained exclusively from material collected in the wild, mostly in Indiana, Kentucky, North Carolina, Tennessee and Virginia. The roots are collected in the autumn and dried. Several hundred tons are collected annually for both domestic and international markets. Since the demand is increasing, harvesting from the wild is laborious, and drug content of wild plants is variable, it has been suggested that high-yielding clones be identified and cultivated. Although seed germination presents problems, the plants are readily grown from root divisions.

FUTURE ANNUAL MEETINGS OF CBA
RÉUNIONS ANNUELLES DE L'ABC

1994 - University of Calgary, Alberta (June 26-30 juin)

1995 - University of Guelph, Ontario (June 24-27 juin)

1996 - University of Prince Edward Island, Charlottetown, PEI

RECENT GRADUATES
GRADUÉ(E)S RÉCEMMENT

University of British Columbia
Department of Plant Science

M.Sc. - 1991-1993

David Konesky (May 1991) - "Embryo-independent mobilization of endosperm starch in cereal seeds." Advisor: Mahesh K. Upadhyaya.

Edward J. Herrington (Nov. 1991) - "Light quality effects on *in vitro* shoot proliferation of ***Spiraea nipponica***." Advisor: Joan C. McPherson.

Arthur Yee (May 1992) - "Recombinant b alleles of ***Ustilago maydis***." Advisors: James W. Kronstad and Brian E. Ellis.

George Powell (May 1992) - "The effect of forage seeding on vegetation dynamics and the early growth and survival of lodgepole pine (***Pinus contorta*** var. ***latifolia*** Engelm.) on a forest clear-cut." Advisor: Michael D. Pitt.

Jana Moziskova (Nov. 1992) - "Expression from chimeric promoter constructs derived from the Cauliflower Mosaic Virus 35S gene and the T-DNA gene 7." Advisor: Joan C. McPherson.

Andrew R. Nicholson (Nov. 1992) - "Impact of prescribed burning on diffuse knapweed (***Centaurea diffusa***) infestations and floral diversity in Kalamalka Lake Provincial Park." Advisor: Michael D. Pitt.

Barbara Kukan (Nov. 1992) - "Development of a DNA probe for detection of Nuclear Polyhedrosis Virus in the forest tent caterpillar ***Malacosoma disstria*** Hbn." Advisor: Judith H. Myers.

Juan Hoyos (Nov. 1992) - "Effects of CO_2 enrichment and potassium supply on growth and inorganic nutrition of chrysanthemum (***Dendranthema grandiflora*** Tzvelev)." Advisor: Peter A. Joliffe.

Andrew Weiczorek (May 1993) - "A conserved epitope on the surface of Carlaviruses." Advisor: Richard Stace-Smith.

Katharine Sircom (May 1993) - "Mechanisms of biological control of crown and root rot in tomato by a nonpathogenic ***Fusarium oxysporum*** strain." Advisor: Robert J. Copeman.

Lawrence Lee (Nov. 1993) - "Transformation of ***Brassica napus*** cv. Westar with the Beet Western Yellows Virus coat protein." Advisor: D'Ann M. Rochon.

Joyce Muwanga (Nov. 1993) - "Land use analysis for agroforestry research and development: a case study for Luwero District in Uganda." Advisor: F. Brian Holl.

Samuel Tsui (Nov. 1993) - "The effects of nitrate on biological nitrogen fixation in ***Phaseolus vulgaris***." Advisor: F. Brian Holl.

Ph.D. - 1992-1993

Lucia Fuentes (Nov. 1992) - "Sunn-Hemp Mosaic Virus as a helper in the intercellular spread of Southern Bean Mosaic Virus in a resistant host." Advisor: R. Hamilton.

Thomas Lowery (Nov. 1992) - "Effects of extracts from neem, ***Azadirachta indica*** A. Juss. on aphids (Homoptera: Aphididae) with respect to their control. Advisor: Murray B. Isman.

Meiqin Qi (May 1993) - "Seed ecophysiology and plant population ecology of ***Cynoglossum officinale*** L. and ***Tragopogon*** spp." Advisor: Mahesh K. Upadhyaya.

Morven McLean (Nov. 1993) - "Molecular characterization of the Cucumber Necrosis Virus coat protein gene." Advisors: D'Ann M. Rochon and R. Hamilton.

Our thanks to Hugues Massicotte for submitting this list (our first from U.B.C. in quite some time; the last one was in the January 1991 issue!). Would anyone from Simon Fraser or UVic. like to send us a list of graduates (these institutions were last heard from also in the January 1991 Bulletin). - Editor.

WORKSHOP REPORTS

WINTER WORKSHOP IN MYCOLOGY UNIVERSITY OF WESTERN ONTARIO

Dr. James A. Traquair, plant pathologist and fungal ecologist at the London Research Centre of Agriculture & Agri-Foods Canada, organized the 14th annual Winter Workshop in Mycology held in March at Windermere Manor in the University of Western Ontario (UWO) Research Park. He was assisted by two mycologists, Dr. André Lachance and Dr. Alan Day, and their graduate students in the Department of Plant Sciences at UWO. This workshop for government scientists, professors and students in the Great Lakes - St. Lawrence Region was attended by 72 delegates representing institutions in Ontario, Québec, Manitoba and Michigan. The theme was **Ecology and Industrial Uses of Fungi**. Dr. Lachance gave the keynote address on the ecology and evolution of yeasts on succulents and cacti. He highlighted his genetic and biotechnological studies of yeast ecology and speciation, and his industrial collaboration with a Mexican company using yeast fermentation to produce tequila from inulin of the ***Agave*** plant. Dr. Don Hayden, plant physiologist in Plant Sciences and Chief Executive of the Research Park Corporation, introduced a panel discussion on industrial mycology by presenting the history and rationale of the University Research Park. Dr. Gregor Reid, microbiologist in the Department of Microbiology and Immunology and Director of University Research Services, outlined the importance of establishing contacts and joint ventures with the government and private industry. Dr. A Margaritis, Chair of Chemical and Biochemical Engineering at UWO, concluded the panel discussion by presenting his experience with the development of computerized fed-batch bioreactors for production of cyclosporin A by the fungus, ***Beauveria.*** Short contributed papers by 25 different delegates highlighted mycological research, including topics such as:

- the fungal biological control of sap-stain fungi in timber,
- the medical diagnosis of dermatophytes,
- hypovirulence in the chestnut blight fungus,
- lichen biology,
- biochemistry, ultrastructure and biophysics of hyphal extension,
- endomycorrhizal colonization of ginseng and purple loose-strife,
- molecular biology and population genetics of various phytopathogenic fungi, and
- storage moulds.

Dr. Bryce Kendrick gave the after-dinner address on the topic, "**Ethics as perceived by a mycologist**". He presented some serious and moving challenges to biologists and environmentalists. Dr. Kendrick announced his impending retirement this spring from the Biology Department at the University of Waterloo. His outstanding contributions to mycology were recognized by Dr. Brent Heath of York University on behalf of mycologists in Canada.

James A. Traquair, Agriculture & Agri-Foods Canada

PLANT DEVELOPMENT WORKSHOP UNIVERSITY OF TORONTO

The 29th Plant Development Workshop was held on March 26th at the University of Toronto, and was organized by Nancy Dengler and the people in her lab. Traditionally, the workshop is held at one of the universities in central Canada, and is a one-day gathering for anyone interested in plant development. It is a good opportunity for graduate students to present papers and to meet people from other universities in the region.

This year over 50 people attended, and 14 papers and 17 posters were presented by representatives from a number of different departments from 6 universities. Root anatomy and physiology, stem anatomy, leaf development, and a number of aspects of floral development were included. Approaches ranged from traditional morphological through physiological, biochemical and molecular biological, with the theme being development. The Plant Development Workshop is a wonderful place to learn about research in a broader range than is normally possible at larger meetings.

The keynote speaker was Dr. Peter McCourt, Department of Botany, University of Toronto ["**Developing a genetic approach to the study of plant development**"]. He took the uninitiated through the thought processes and steps involved in obtaining mutants, and subsequently carrying out genetic studies of development [specifically in ***Arabidopsis***]. He also discussed the strengths and weaknesses of using one plant as a model for others. The ensuing lively and productive discussion made for a satisfying end to the day.

Jean Gerrath,
Dept. of Horticultural Science, University of Guelph

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.

Banking Chocolate

Chocoholics unite! Your favourite crop may be endangered. The vanishing tropical forests are taking with them much of the gene diversity of wild cocoa plants (***Theobroma cacao***). Wild plants resistant to "witches' broom" saved the cocoa plantations in the 1930s, but the crop is still highly susceptible to "black pod", a fungal disease, and "swollen shoot", a viral disease. Funds to search for wild plants resistant to these diseases are hard to obtain. Development agencies say that cocoa is a "luxury" crop, and any research should be supported by the producers. The producers, naturally, fear that any marked improvement of the cocoa plant will increase supply, causing prices to tumble. These short-sighted actions could mean complete destruction of the industry by a particularly virulent disease, especially if no wild plants resistant to it can be located quickly.

There are two cocoa gene banks which are attempting to maintain the known gene diversity of the species. One is in Costa Rica (for Central American cocoa types) and the other is in Trinidad (for South American types). The Trinidad gene bank is managed by the Cocoa Research Unit of the University of the West Indies, headed by John Spence, using funds supplied by the Trinidad government and by British chocolate manufacturers (Cadbury, Fry and Rowntree). Putting together a cocoa gene bank is not easy, however. Cocoa seeds are "recalcitrant". In case you have forgotten your introductory botany, this means that they cannot withstand drying or cold storage (the normal way to bank plant genes), and usually will die within a few weeks after being separated from the mother plant. Obviously, to maintain the gene pool you have to grow the plants. Currently the Trinidad gene bank grows 16 trees each of about 2500 kinds of cocoa. Spence is hoping to establish a $16 million endowment fund to ensure the future operation and expansion of the Trinidad gene bank. (The Costa Rican gene bank is not discussed in this report.)

New Scientist, 140 (1905/6), Dec.25, 1993/Jan. 1, 1994

Our thanks to Joan Venn for sending us this item..

More Choco-exotica, erotica, et al.

Modern chocoholics may or may not agree with the 17th century English royal physician who declared that "chocolate is provocative to lust". There are also testimonials from the ancient Aztecs, who limited its use to the ruling males, and from Casanova, who apparently was a regular user. Chocolate contains several compounds which stimulate the central nervous system, including caffeine (much less than a similar amount of coffee), theobromine (may alleviate depression and hypertension) and phenylethylamine, which is similar to a neurohormone secreted by humans when sexually aroused (probably not enough in chocolate to do much). If chocolate doesn't work for you, try a Chinese meal containing ginger (long considered an aphrodisiac), fenugreek (contains diosgenin, used in the synthesis of sex hormones) and nutmeg (also considered to be a powerful aphrodisiac by the Chinese). Or ... you might try this bit of European Valentine's Day folklore. Make several pin pricks in a orange and sleep with it in your armpit. The person who eats the orange will fall in love with you (this report, however, is not very clear on how this lucky person obtains your sweaty orange). At the risk of being "Bobbitted" I should also mention that a Chicago researcher has found that the odour of cinnamon promotes male erections.

The bad news about chocolate is its high fat content (the average chocolate bar is about 50-60% fat). However, another article notes that cocoa butter, the main fat in chocolate, contains a fatty acid (stearic acid) that does not raise blood cholesterol levels or contribute to plaque formation in arteries. Total saturated fat content of cocoa butter ranks above butter, beef fat and olive oil, but one-third of cocoa butter fatty acids are stearic acid. Thus it could be included in a cholesterol-control diet to make it more interesting (calories would still be a problem, however).

Don't let the cosmetic industry find out, but if you are worried about dry skin and wrinkles, cocoa makes a fine facial pack to rejuvenate your skin. Mix a little dairy cream and olive oil with about 50 ml (1/4 cup) of cocoa powder to make a creamy paste (should be enough for 3 or 4 facials; store unused part in refrigerator). Apply to the face (à la mud pack) and leave on for about 10 minutes before washing off with warm water. Regular treatments are supposed to keep your face youthful and feeling softer. Sorry ... no guarantee.

Toronto Star, February 12 and 13, 1994

Kitchener-Waterloo Record, February 14, 1994

CNN News, Jan. 12, 1994; Guelph Mercury, March 1, 1994

Headache Medicine for Plants

Headaches, in the human sense, are, of course, not a problem for plants. Their biggest headaches are pathogens, such as fungi, bacteria and viruses, which continually attack and must be dealt with. It turns out, according to a research team from Ciba-Geigy, that salicylic acid (the basis for aspirin) is

involved in plant resistance against disease. In a report recently published in *Science*, they have shown that accumulation of salicylic acid in plant tissue (they used tobacco plants) after an infection is essential for the development of a response called "systemic acquired resistance" (SAR), a broad defence strategy aimed at a wide range of invading pathogens. SAR seems to be involved in controlling a set of genes encoding certain proteins which have been shown (*in vitro*) to have antibiotic properties. Preventing the accumulation of salicylic acid (by plugging an enzyme into the plant to break it down) made experimental tobacco plants much more susceptible to TMV (tobacco mosaic virus) than control plants in which salicylic acid levels increased as much as 185-fold after infection. By the way (and this is in the useless information category), this report credits the discovery of the analgesic properties of willow bark (and salicylic acid) to Edmund Stone, an 18th-century Anglican clergyman. No one has any idea why he was gnawing on a willow twig.

Kristen Leutwyler, Scientific American, January 1994
Our thanks to Joan Venn for sending us this item, also.

Miscellaneous Notes from New Scientist

Simon Landhausser and Ross Wein of the University of Alberta have concluded that global warming and wildfires are contributing to the observed northward spread of two deciduous trees (***Betula papyrifera*** and ***Populus balsamifera***) into previously treeless tundra near Inuvik. In burnt areas the conifers, ***Picea mariana*** and ***Picea glauca***, are much less common than in unburned sites, while the reverse is true for the deciduous trees.

Environmentalists are cringing at the reported swap of "debt for destruction" between France and Cameroon. In return for cancellation of nearly $6 billion of debt owed to France, Cameroon has given French companies almost exclusive access to its timber resources. According to the Cameroon Post, one of the leading newspapers, more debt would be cancelled if the country's legislators pass a bill that would more than double the amount of forest available for logging. Cameroon currently has about 220,000 square kilometres of forest, but the IUCN estimates that these forests are being destroyed 10 times as fast as they are being regenerated.

When did flowering plants first bloom on the earth? The first really good angiosperm fossils are from the early Cretaceous, about 130 million years ago. Recent fossil evidence, fragmentary and still debated, and some "molecular clock" studies on living plants, suggest that flowering plants probably existed (and presumably originated) in the Triassic Period, about 100 million years earlier.

New Scientist, 29 January 1994
Yet more contributions from Joan Venn's eagle eyes.

More Pot Perambulations

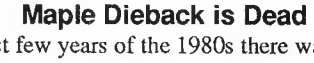
Pot (marihuana) is illegal, mainly because people get high from it, but also because prolonged use can produce psychological dependence and cognitive impairment. THC (delta-1,9-tetrahydrocannabinol), which is the high-producing chemical from about 60 cannabinoids found in pot smoke, has medicinal uses and is prescribed for relief of glaucoma and of nausea associated with cancer chemotherapy. There are 2 marijuana-derived prescription drugs legally sold in Canada under the names marinol (contains THC) and cesamet (a synthetic cannabinoid). The fact that a cannabinoid receptor has been found in brain cells (its gene was cloned in 1990), and also in spleen and lymph node cells (areas that are important in the immune system), means that the body has some natural substances that fit these receptor sites and presumably have some physiological action which is still to be worked out. The natural substance attaching to brain cell cannabinoid receptors was discovered in 1992 and named anandamide ["ananda" means "internal bliss" in Sanskrit] but those fitting spleen and lymph node receptors have yet to be located. Once the actions and purposes of these receptor systems are understood, researchers hope to develop pharmaceuticals based on the cannabinoid chemical structure which would act through these receptor sites.

Toronto Globe & Mail, January 8, 1994

Angiosperm Witness for the Prosecution

For the first time a murderer has been convicted on DNA evidence obtained from a plant. The case was described in the PBS TV series, Scientific American Frontiers, amiably hosted by a continually bemused Alan Alda, the perfect foil for the scientists he interviews. The murder of a young woman occurred in Phoenix, Arizona, and the finding of a pager at the scene of the crime lead the police to a prime suspect in the case. He admitted picking up the victim, but claimed she had robbed him of his wallet and pager. The forensic squad examined the suspect's pickup truck and among the bits of evidence collected were pods later identified as the fruits of palo verde (***Cercidium*** spp.). One detective went back to the murder scene and found several palo verde trees, one of which showed some damage that could have been caused by a vehicle. The detective's superior officer innocently suggested the possibility of linking the fruits and the tree by using DNA comparison, not realizing that this had never been done before. Several researchers were contacted before a geneticist at the University of Arizona in Tucson agreed to take on the case. Of course, the first crucial study was to establish evidence that would stand up in court on whether individual plants (especially the palo verde trees) have unique patterns of DNA. A preliminary study on samples from different trees from the murder scene and elsewhere quickly established that each palo verde tree was unique in its DNA pattern. It was then a simple matter to link the pods from the suspect's truck to the damaged tree at the murder scene and obtain a conviction.

WNED-TV (PBS - Buffalo, N.Y.), January 19, 1994



Maple Dieback is Dead

During the last few years of the 1980s there was great anxiety among maple syrup producers concerning "maple dieback". Large numbers of maple trees were dying or in serious trouble from what was thought to be the effect of acid rain and other

pollutants. During the last couple of years, according to a recent interview with John Butler, the Ontario government's maple syrup expert, the maples seem to be healthy and what appeared to be a serious problem was probably just a transitory effect of various normal environmental stresses. The current explanation offered for the dieback implicates weather-related factors and severe outbreaks of tent caterpillars which defoliated the trees several years in succession. As examples of weather problems, there were several extended drought periods during the dieback years and one severe January when there was a very mild thaw period immediately followed by bone-(and tree)-chilling cold. That same severe winter wiped out most of the apple orchards in Québec.

Kitchener-Waterloo Record, January 14, 1994

Taxol Synthesized

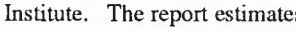
Two rival research groups, lead by Robert Holton at Florida State University and by K.C. Nicolaou at Scripps Institute in California, have succeeded in synthesizing taxol, the Pacific yew tree's gift to the fight against certain cancers (ovarian, breast, lung and possibly others). Holton submitted his method first (*J. Amer. Chem. Soc.*) so he technically gets the first place ribbon. In his lab the synthetic drug was made using camphor as the basic ingredient, while Nicolaou's method was more circuitous, starting with the synthesis of the two main 6-carbon rings and later joining them to produce the 8-carbon ring connecting them. It is not likely that either method will become commercialized, however, since taxol is extracted easily from yew needles, a renewable resource that will not require destruction of the trees.

New York Times, February 1, 1994

Gene Bank Problems

"Some minor seed banks are in fact seed morgues", says Peter R. Day (Rutgers Univ.), who chaired a committee that produced a recent "warning" report by the (United States) National Research Council. The report accuses some seed banks of letting seeds of older, inferior plant varieties die. The value of these varieties is not immediately apparent, but they could provide valuable gene resources for future resistance against pests and diseases. The basic problem is the lack of funding to maintain all of the varieties. The report estimates an annual cost of US$240 million to preserve plant diversity in 30-40 key seed and germplasm banks, a small amount compared to the approximately US$30 billion value of seed sales annually. International seed collections vary from a single deep-freeze with a few seeds to the massive 86,000 rice varieties at the International Rice Research Institute. The report estimates that more than 550,000 recorded samples of seeds or germplasm are stored in the United States alone. [*You should take note of the newspaper in which I found this. It was not in any of the western hemisphere newspapers that I scan regularly. Need I say more? - Editor*]

China Daily, February 3, 1994

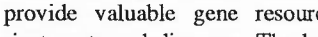


Fires, Forests and Flowers

Except for pyromaniacs, not many people like large fires. Humans spend an inordinate amount of time and money fighting fires in forests and other natural ecosystems. Ecologists, however, have known for years that fire can be an essential part of the functioning of many natural ecosystems. The huge forest fires around Yellowstone Park in 1988, which destroyed about 600,000 hectares of forest and burned for nearly three months, seemed to be a turning point in convincing government agencies that such fires are not inherently bad and should be allowed to burn unless they threaten human lives or property. Fires are now known to be a regular and recurring factor in the history of Yellowstone Park's forests, occurring at intervals ranging from 25 to 400 years. The recent and highly publicized fires in Californian chaparral and Australian forests also occurred in ecosystems in which fire is an essential, recurring environmental stress. In Australia many native plants have fire-resistant seeds that actually need a fire to germinate. The national flower (a species of ***Banksia***) must have an intense fire to split open the cone-like structures that retain the seeds. The blackboy (***Xanthorrhea*** spp.) can only flower after a fire produces enough ethylene gas to trigger the plant's flowering response. Many Australians felt very depressed by the desolate appearance of the burned-over landscape, but plant ecologists know that such areas will quickly produce new healthy plants whose very existence depends on the periodic occurrence of forest fires.

Botanists from the U.S. Nature Conservancy have found that military bases, expecially those parts used as bombing and artillery ranges, are among the richest areas for plant biodiversity in the country. Many of the plants are fire dependent and these are areas in which the military often conducts regular prescribed burns (in addition to fires caused by explosives). More than 58 rare or endangered plant species were recorded in a survey of two military installations (100,000 acres) in North Carolina. The list includes six species not previously recorded from the state.

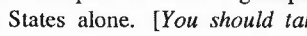
Paul Simons, Toronto Star, January 15, 1994
Bioscience, February 1994



Smoke gets in your (Ancient) Eyes

Archaeologists have found 600-year-old gaspers at the Red Bow Cliff Dwelling in Arizona. These cigarettes were made from ***Phragmites*** stems stuffed with tobacco. The tough reed stems were apparently reusable. One archaeologist, K.R. Adams, noted that there now exist records about various Indian groups who smoked parts of at least 13 kinds of plants and at least one kind of bird feathers (yecch!).

Botanical Electronic News #68, January 10, 1994



Wendi's Festive Fare includes "Moon Balls"

The Lantern Festival (also called the Yuanxiao Festival) occurs on the night of the first full moon of the Chinese lunar calendar (Feb. 24 this year). It dates back more than 2,000 years and was originally a celebration of the defeat of rebel forces by the Han Dynasty emperor, Wendi (180-140 B.C.).

The festival features colourful lantern displays and yuanxiao, a glutinous rice ball stuffed with various sweet fillings. The origin of these rice balls is associated with a legend about Chang'e, who flew off to the moon and became its goddess after swallowing a magic potion. Her husband, Houyi, of course, was devastated and became very ill. On the eve of the first full moon of the lunar year the goddess sent a messenger fairy to Houyi to tell him that she would come down to earth to be with him. He first had to make a batch of glutinous rice balls shaped like the full moon, and then he had to repeat her name over and over until she appeared. The legend ends here (bummer!!) ... apparently no one knows whether Chang'e did or did not come down to be with her husband.

There are many (at least 30) types of fillings for the yuanxiao "moon balls" and various methods for preparing them. Fillings are sugary concoctions with ingredients ranging from ground nuts, sesame seeds and traditional pastes of hawthorn, jujube or beans, to more modern chocolate, cocoa powder or minced meats. In some parts of China the filling is made first and then rolled in glutinous rice powder to make the outer covering. In southern China a sticky rice ball is made first and then the filling is pressed in toward the centre. The yuanxiao is then cooked by boiling, deep frying or steaming.

China Daily, February 24, 1994

Colic Cure

According to research results from an Israeli medical centre published in the *Journal of Pediatrics*, a traditional Middle Eastern remedy for stomach ache is excellent for alleviating colic in babies. This herbal tea, a warm-water infusion of a blend of chamomile, licorice, fennel and balm-mint, was more than twice as effective as any control, non-tea drink.

Guelph Mercury, March 1, 1994

Smelling Thinner

We should not turn up our noses at the results of a 6-month study involving over 3000 persons by the Smell and Taste Treatment and Research Foundation in Chicago [I kid you not, ... there is such an organization, which receives partial funding from perfume companies (if that means anything for this study)]. Participants (each 10 pounds or more overweight, average age of 42 and a mixture of more men than women) lost an average of 30 pounds by sniffing the odours (but not eating the real thing) of banana, apple and peppermint. A few lost over 100 pounds. During the study each person was told to continue their normal lifestyle, but to sniff one of the three (synthetic) odours from a vial when they became hungry or had a craving for certain foods (sniffing frequencies ranged from 18 to 285 per day). According to Alan Hirsch, project director, the smell seems to tell the brain that eating is occurring and the brain then sends a message to stop the hunger pangs. No single smell was significantly better than any other (except for unpleasant smells, which usually did not work and sometimes even had an opposite effect). Another study, which will test a wider range of smells, has been started.

Kitchener-Waterloo Record, February 25, 1994

Tie into Thai Cuisine

The late John Candy's character, in one of his many movies, says, "You might have noticed that I ... umm ... have a bit of a weight problem." Well, all of us "weight-challenged" individuals should be wary of Thai cuisine, which sports so many interesting and attractive flavours and smells. A major ingredient in Thai cooking is coconut milk, which is not the liquid one finds in the coconut, but a rich concoction made by pressing freshly grated coconut mixed with a little water. One cup of coconut milk contains 605 calories and 60 grams of fat (!!). However, those with a high metabolic rate can enjoy the many plant-derived flavours used in Thai dishes. These include diced or sliced galangal (also called Laos or Thai ginger; ***Alpinia*** sp.) which has a peppery flavour, Kaffir lime leaves (used like bay leaves to give a citrus flavour to soups and curries; is this a ***Citrus*** species?), lemon grass (***Cymbopogon citratus***; the stem base gives a long lasting lemon flavour) and the sweet/sour flavouring of tamarind pulp (from the leguminous tree, ***Tamarindus indica***, which is actually a native of Africa). Other important ingredients used in Thai cuisine are fresh basil, coriander, mint, shallots, hot chilis, peppercorns, garlic, ginger and lime juice, as well as many types of red, green or yellow curry mixtures.

Toronto Star, February 25, 1994

Coffee Payouts

Caffeine is the most widely used drug in North America and, according to a recent marketing research survey, Canadians and Americans spend (annual per capita cost in U.S. dollars) $9.30 and $12.65, respectively, for their coffee. The Scandinavians, however, really tank up on their coffee, the annual per capita bills for Finland, Sweden and Norway being $59.91, $56.36 and $45.11, respectively. For the Irish, the lowest on the list, the comparable figure is just $7.53. O.K., so why do Scandinavians have such a reputation for calmness while the Irish are supposed to be highly strung?

Guelph Mercury, March 1, 1994

Research on a Shoestring

Uña de gato ("cat's claw"; ***Uncaria tomentosa***) is being tested in Peru as an immune system stimulant for AIDS patients. Used as a medicinal herb by the Incas, a tea made from it is still prescribed by traditional medicine for everything from headaches to cancer. Few modern Peruvian doctors were surprised when people turned to it as a treatment when AIDS appeared in Peru in 1983 (there are now over 1,000 cases recorded, one third of whom have died). As its use increased, Eduardo Gotuzzo, a researcher at Cayetano Heredia University's Institute for Tropical Medicine, thought that uña de gato merited a rigorous double-blind study to determine if it really was effective against AIDS. The government encouraged him to go ahead but would not provide funds (they are even more cash-strapped than us). He did manage to scare up some money and the study, on fewer subjects than he would have liked to have tested, is being carried out with a budget of 2,000 nuevo soles, roughly US$925.

China Daily. February 24, 1994

MEETINGS / CONGRÈS

Congrès de l'Acfas

Le **62e Congrès de l'Acfas** (l'Association canadienne-française pour l'avancement des sciences) aura lieu à l'Université du Québec à Montréal **du 16 au 20 mai 1994.** La thème du congrès est: «**Sciences en mouvement**». Renseignements: **Acfas, 4215, rue de la Gauchetière est, Montréal, Québec H2L 2M7; Téléphone: (514) 849-0045; Télécopieur: (514) 849-5558.**

Nitrogen Fixation Congress

The **10th International Congress on Nitrogen Fixation** will be in St. Petersburg, Russia, from **May 28th to June 3rd, 1994.** To obtain further information, contact: **Prof. Igor A. Tikhonovich, Research Institute for Agricultural Microbiology, Podbelsky Shosse 3, St. Petersburg-Pushkin 8, 189 620 Russia.**

International Palm Society

The **1994 Biennial Meeting of the International Palm Society** will be held in Caracas, Venezuela, **June 12-16, 1994.** The meeting is co-hosted by the Venezuelan Palm Society and the Fundación Instituto Botánico de Venezuela. During the beginning weekend the Jardín Botánico de Caracas, with a magnificent palm collection among its more than 2,500 plant species, will have a Fería de las Palmas (Palm Fair) to focus general public attention on palms and palm culture. Several field trips are planned to enable participants to see palms in their native environments (from mountain cloud forests to sea level), to visit palm nurseries and to see palms used as plantings in both public and private gardens. For information, contact the IPS President and Meeting Coordinator: **Jim Cain, 12418 Stafford Springs Drive, Houston, TX 77077-3910. Telephone: (713) 964-6345. FAX: (713) 964-6555.**

Plant Lipids

The **11th International Meeting on Plant Lipids (Structure, Function and Gene Technology)** will be in Paris, France, **June 26 to July 1, 1994.** Information: **Jean-Claude Kader, Plant Cell & Molecular Biology Unit, Université Pierre et Marie Curie, CNRS Case 154, 4 Place Jusieu, 75005 Paris, France. FAX: 33 1 44 27 61 51.**

Electron Microscopy Congress

The **13th International Congress on Electron Microscopy** will be in Paris, France, **July 17-22, 1994.** Information: **Secretariat, ICEM-13, 67 rue Maurice Günsbourg, 94205 Ivry sur Seine Cedex, France.**

Plant Nutrition Symposium

The **5th International Symposium on the Genetics and Molecular Biology of Plant Nutrition** will be in Davis, California, **July 17-24, 1994.** For information, contact: **D.W. Rains, Dept. of Agronomy & Range Science, University of California, Davis, CA 95616. FAX: (916) 752-4361.**

Plant Proteins

The Production of Recombinant Proteins in Plants is the title of a meeting to be held in Leicester, U.K., **July 24-31, 1994.** Information: **Dr. Olwyn Byron, Dept. of Biochemistry, University of Leicester, University Road, Leicester, U.K. LE1 7RH.**

Compositae Conference

An **International Conference on Compositae** will be held at Kew Gardens from **July 24 to August 5, 1994.** Information: **Mr. C. Jeffrey, Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, U.K. TW9 3AE.**

ASPP / Plant Dormancy Meetings

The **American Society of Plant Physiologists 1994 Annual Meeting** in Portland, Oregon, **July 30th to August 3rd,** will be followed by the **First International Symposium on Plant Dormancy**, at Oregon State University, Corvallis, Oregon, **August 4th to 6th, 1994.** For information about the ASPP Meeting, contact: **ASPP Headquarters, 15501 Monona Drive, Rockville, MD 20855; FAX: (301) 279-2996.** For the Dormancy Symposium, contact: **Dr. Gregory A. Lang, 137 Julian C. Miller Hall, Louisiana State University, Baton Rouge, LA 70803-2120; Telephone: (504) 388-1043; FAX: (504) 388-1068.**

Chlorophyll-Protein Complexes

A conference honouring the retirement of J. Philip Thornber will be held in Los Angeles, California, **August 3-6, 1994.** The conference bears the title: **Structure, Function and Biogenesis of Chlorophyll-Protein Complexes.** For further information, contact: **Richard Malkin, Department of Plant Biology, 111 Koshland Hall, University of California, Berkeley, CA 94720; FAX: (510) 642-4995; e-mail: dickm@nature.berkeley.edu**

AIBS Meeting

The **45th AIBS Annual Meeting** will be held in the Knoxville, Tennessee, Convention Center, **August 7-11, 1994.** The general theme of the meeting is ***Science and Public Policy.***

Botanically or ecologically oriented societies which are holding their annual meetings with AIBS include:

- ❑ American Bryological & Lichenological Society
- ❑ American Fern Society
- ❑ American Society of Plant Taxonomists
- ❑ Botanical Society of America
- ❑ Ecological Society of America
- ❑ International Society of Ecological Modelling.

To obtain the registration package, either send in the postcard from a recent issue of *BioScience*, or write: **AIBS, Central Station, P.O. Box 27417, Washington, DC 20077-0038**, or **telephone: (202) 628-1500.**

Succulent Plant Congress

The **23rd Congress of the International Organization for Succulent Plant Study (IOS)** will be held in Wageningen, the Netherlands, **August 18-22, 1994**. Information: **IOS Secretariat, Department of Plant Taxonomy, P.O. Box 8010, NL 6700 ED Wageningen, the Netherlands.**

Forest Biodiversity Symposium

Measuring and Monitoring Biodiversity in Tropical and Temperate Forests is the title of a symposium to be held in Chiangmai, Thailand, **August 28 to September 3, 1994**. For information, contact: **Secretariat, Forest Biodiversity Symposium, Royal Forest Department, Silvicultural Research Subdivision, 61 Paholyothin Road, Chatuchak, Bangkok, Thailand 10900.**

More Biodiversity

An international conference with the title, **Biodiversity and Development: Towards a New Partnership**, will be held in Paris, France, **September 4-9, 1994**. Information: **IUBS, 51 Boulevard de Montmorency, 75016 Paris, France.**

Plant Molecular Biology

Plant Molecular Biology: Potential Impact on Agriculture and the Environment is the title of the 22nd Aharon Katzir-Katchalsky Conference, which will be held in Cologne [Köln], Germany, **October 2-6, 1994**. Obtain information from: **Ruth Goldstein, Aharon Katzir-Katchalsky Research Center, Weizmann Institute of Science, Rehovot 76100, Israel; FAX: 972-8-474425; or through e-mail to: jkgold@weizmann.weizmann.ac.IL**

NATO Workshop

A NATO Advanced Research Workshop bearing the title, **The Role of Global Forests Ecosystems and Forest Resource Management in the Global Carbon Cycle**, will be in Banff, Alberta, **September 12-16, 1994**. Information: **Dr. M.J. Apps, Northern Forestry Centre, 5320 - 122nd Street, Edmonton, AB T6H 3S5.**

Biochemistry / Molecular Biology Congress

The **16th International Congress on Biochemistry and Molecular Biology** will be in New Delhi, India, **September 18-22, 1994.** Information from: **N. Appaji Rao, Society of Biological Chemists, Department of Biochemistry, Indian Institute of Science, Bangalore 560 012, India; FAX: 91-812-341-683.**

Another Workshop

An International Workshop on Plant Genetic Resources, Desertification and Sustainability will be in Rio Gallegos, Santa Cruz, Argentina, **November 7-11, 1994**. Information: **Leopoldo Montes, E.E.A.-(INTA) Santa Cruz, CC332, (9400) Rio Gallegos, Santa Cruz, Argentina.**

Looking Far into the Future - 1995 Meetings

Herbicide Resistance Symposium

An International Symposium on Weed and Crop Resistance to Herbicides will be in Córdoba, Spain, April 3-6, 1995. Contact person: R. De Prado, Departamento de Bioquímica y Biología Molecular, ETSIAN, Universidad de Córdoba, Apartado 3048, 14080 Córdoba. España (Spain).

Ribosome Conference

An International Conference on Ribosomes will be held in Victoria, B.C., May 20-25, 1995. Contact person: A.T. Matheson, Department of Biochemistry and Microbiology, University of Victoria, Victoria, BC V8W 2Y2.

ASPP - 1995

For those who absolutely must know the dates this far in advance, the **1995 Annual Meeting of the American Society of Plant Physiology** will be in Charlotte, North Carolina, from **July 29th to August 2nd, 1995**. See 1994 listing on opposite page for contact address.

IOPB Symposium

Our thanks to Bill Grant for sending us the First Circular describing the **Sixth International Symposium of the International Organization of Plant Biosystematists (IOPB),** which will be at the University of Tromsø, Norway (the world's northernmost university since it was founded in 1972), **July 29th to August 2nd, 1995**. The Symposium is organized in cooperation with the Bergius Foundation of the Swedish Academy of Sciences and the Botanical Garden and Museum of the University of Oslo. The tentative topics for the 8 sessions currently planned for the Symposium are:

- ❑ Arctic and alpine environments and their biodiversity.
- ❑ Reproductive strategies of arctic and alpine plants.
- ❑ Demography of arctic and alpine plants.
- ❑ Growth patterns and ecophysiological constraints above the timber-line.
- ❑ Seed biology of high altitudes and latitudes.
- ❑ Current molecular methods in plant population genetics.
- ❑ Speciation and taxonomic differentiation in the arctic and alpine floras.
- ❑ The Arctic and the Alpine under global change.

Field trips are planned to the arctic environments of Svalbard, Spitzbergen, and to alpine environments near Abisko, Swedish Lapland, and near Tromsø. There will also be a visit to the Tromsø Botanic Garden, opening in 1994, which houses polar-alpine plants (another northernmost feature of Tromsø - most northerly botanic garden).

Anyone who is not already a member of IOPB and who wishes to attend or to obtain more information about the Symposium should contact: **VI IOPB Symposium, c/o Bergius Foundation, Box 50017, S-10405 Stockholm, Sweden. FAX: +46 8 612 9005.**

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To ensure continuous delivery of the Bulletin please notify the Treasurer promptly of any change of address.

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