

THE CANADIAN BOTANICAL ASSOCIATION

BULLETIN

DE L'ASSOCIATION BOTANIQUE DU CANADA

Patron / Président d'honneur

His Excellency the Right Honourable / Son Excellence le très honorable

Roméo Leblanc P.C., C.C., C.M.M., C.D.

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Guelph

ON THE INSIDE À L'INTÉRIEUR

Prix Cinq-Mars Award	3
Bourse Macoun Bursary	3
McNeill Steps Down	4
Nominations	
J.S. Rowe Award	5
Taylor A. Steeves Award	5
A.E. Porsild Award	6
1996 J.S. Rowe Award Citation	6
Recent Graduates - Western	7
CBCN Workshop Report	8
Book Review	9
Economic Plants of Canada, No. 12	10
Recent Graduates - Guelph	12
Plant Press / La Presse Botanique	13
Meetings	15

EDITOR'S COMMENTS COMMENTAIRE DE LA PART DE L'ÉDITEUR

Abstract Forms for 1997 Annual Meeting

Mailed with this issue of the Bulletin are various forms necessary for submission of abstracts for the meeting this August in Montréal. These forms are supplied by the Program Director of the Botanical Society of America, which is coordinating the botanical program at the meeting, and include: the Call for Papers, the Title Submission Form and the Abstract Form. Please note the deadline date of February 28, 1997, for submission of abstracts. Take note also that the abstract must be sent to the program chair of the BSA Section in which you wish to present your paper or poster (see back of Call for Papers).

Student Awards at Montréal

Registration forms are also included for the CBA/ABC Student Awards for 1997 (Cinq-Mars Award, Macoun Travel Bursary and Poster Session Award). Regulations concerning the Cinq-Mars and Macoun awards are printed on pages 3 and 4 of this Bulletin. Students entering the Cinq-Mars competition should note that they must send a copy of their Cinq-Mars Registration Form with their Abstract forms to the BSA Program Chair in order to have the student papers scheduled at times which do not overlap. This requirement does not apply to the Poster

Award. A copy of the Cinq-Mars Form (or Poster Form) and the Abstract Form must be sent to the CBA/ABC Vice-President.

Other things in the Bulletin

Requests for nominations for the Rowe, Steeves and Porsild Awards are included in this issue (pp. 5 and 6). There are listings recent graduates from the University of Western Ontario and Guelph (I need more of these from other universities, please). Liette Vasseur has provided us with a report on the First Workshop of the Canadian Botanical Conservation Network (pp. 8 and 9) and a Book Review. There is another in the continuing series on Poorly Known Economic Plants of Canada, this time on bloodroot. And I have managed to include two pages of botanical items for the Plant Press.

Reviewers Needed

The Book Fairy has been kind to the Association over the Christmas holidays. Here is a list of some books sent for review by Cambridge University Press.

The Anther: Form, Function and Phylogeny. Edited by W.G. D'Arcy & R.C. Keating. 1996.

Biology of Citrus. by P. Spiegel-Roy & E.E. Goldschmidt. 1996.

A Century of Mycology. Edited by B.C. Sutton. 1996.

Diversity and Evolutionary Biology of Tropical Flowers. by P.K. Endress. Corrected Paperback Edition 1996.

Fungi and Environmental Change. by J. C. Frankland, N. Magan & G.M. Gadd. 1996. [from a 1994 Symposium of the British Mycol. Soc.]

Global Change and Terrestrial Ecosystems. Edited by B. Walker & W. Steffen. 1996.

The Living Fields. Our Agricultural Heritage. by J.R. Harlan. 1995.

In addition, N.R.C. Research Press has sent us a review copy of: **Flora of the Yukon Territory.** by W.J. Cody. 1996

Anyone who is interested in writing a review of any of these books, please contact the editor. I suspect that these ones will be snapped up rather quickly.

Joe Gerrath, Editor

Future Annual Meetings Prochaines Réunions Annuelles

1997

Palais des Congrès/Convention Centre
Montréal, QC
(with/avec A.I.B.S.)
August 3-7 août

1998

University of Saskatchewan
Saskatoon, SK
July/juillet

1999

St. Louis, Missouri
(XVI International Botanical Congress)
August 1-7 août

2000

University of Western Ontario
London, ON

2001

Okanagan University College
Kelowna, B.C.

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LIONEL CINQ-MARS AWARD

Each year the Canadian Botanical Association gives an award for the best student paper presented at the CBA/ABC annual meeting. The award is made in memory of Lionel Cinq-Mars, a founding member of the Association and a widely admired teacher.

Any bona fide student enrolled at a Canadian institution of higher learning is eligible, as well as Canadian students at foreign institutions, both undergraduate or graduate. The paper (one only per student) can be given at any session of the annual meeting. Every effort will be made to ensure that each student in the competition has a fair evaluation and an equal chance of winning the award.

Papers will be evaluated by a panel of judges (at least one from each of the sections of CBA/ABC) which is chaired by the President-Elect, Denis Barabé. The merit of each paper will be judged on the basis of content (60%) (originality, technical expertise, and associated subject knowledge) and presentation (40%) (lucidity, organization, use of visual aids, audibility and "presence").

The Lionel Cinq-Mars Competition is an important part of each annual meeting. We hope that there will be many participants in Montréal and that the students will benefit, both from the experience of giving an oral presentation and from the comments which each student will receive from the panel of judges.

All students who wish to compete for this award must attach the awards registration form to the abstract forms and send to the appropriate committee (see instructions on back of BSA abstract form). Those who used an abstract form from another society should send this form. A copy of the abstract and of the awards registration form must be sent to: Dr. Luc Brouillet, Vice-President CBA/ABC, IRBV, Université de Montréal, 4101 est, rue Sherbrooke, Montréal, Québec H1X 2B2. FAX: 514-872-9406.

PRIX LIONEL CINQ-MARS

Chaque année l'association canadienne de botanique décerne un prix pour la meilleure communication orale présentée par un étudiant [ou une étudiante] lors de la rencontre annuelle de l'ABC/CBA. La récompense est remise à la mémoire de Lionel Cinq-Mars, un des membres fondateurs de l'association et un professeur fort admiré.

Éligibilité: Tout étudiant inscrit à une institution canadienne de haut savoir ou tout étudiant canadien inscrit à une université étrangère, qu'il soit de 1er, 2e ou 3e cycle. La communication (seulement une permise par étudiant) peut être présentée à n'importe quelle session de la rencontre. Un effort sera fait afin d'assurer à chaque étudiant de pouvoir compter sur une chance égale pour l'obtention de ce prix.

La décision finale sera rendue par un jury comprenant au moins un membre de chaque section de l'ABC/CBA et dirigé par le président désigné, Denis Barabé. La qualité de la communication est jugée selon le contenu (60%) (originalité,

techniques, connaissance du sujet) et la présentation (40%) (lucidité, organisation, utilisation de l'audiovisuel, clarté du texte).

La compétition Cinq-Mars est une partie importante de chaque rencontre annuelle. Nous comptons sur une forte participation à Montréal et nous espérons que les étudiants bénéficieront autant de l'expérience acquise à communiquer oralement que des commentaires qu'ils recevront de la part des membres du jury.

Tout étudiant qui désire compétitionner pour ce prix doit attacher le formulaire d'inscription aux prix au formulaire de résumé envoyé au comité approprié (voir instructions au verso du formulaire de résumé de la BSA). Ceux qui auraient déjà envoyé leur résumé à l'aide du formulaire d'une autre société devraient aussi envoyer ce formulaire au comité concerné. Une copie du résumé et du formulaire d'inscription aux prix doit être envoyée au vice-président de l'ABC:

Dr. Luc Brouillet, IRBV, Université de Montréal, 4101 est, rue Sherbrooke, Montréal, QC H1X 2B2. Fax: 514-872-9406

JOHN MACOUN TRAVEL BURSARY

The John Macoun Travel Bursary, named in honour of the man who served as official botanist on five major expeditions throughout Canada during the late 19th and early 20th centuries, is awarded to a graduate student who presents an oral paper in the Lionel Cinq-Mars Competition.

Eligibility:

1. Competition for the Bursary is open to **Canadian students both within and outside of Canada**. Eligible students are encouraged to apply, even if the CBA/ABC meeting is to be held at their own university.

2. Competitors **must present a paper in the Lionel Cinq-Mars Competition** at the 1997 CBA/ABC Annual Meeting in Montréal.

3. No student may receive more than one award from the Macoun Fund while registered for the same degree.

Procedures:

1. Students applying for an award must do so **no later than February 28, 1997**.

2. The application must contain the following documents:

a) a **copy of the abstract** of the paper to be given in the Lionel Cinq-Mars Competition at the CBA/ABC Annual Meeting and a copy of the awards registration form.

b) a **supporting letter from the student's Supervisor** of research that also includes a statement that the student is engaged in a Ph.D. or M.Sc. programme.

c) a statement from the student outlining the **amount of money requested**.

d) the student's curriculum vitae (one page).

e) a letter of recommendation from a member of the student's research committee (not the Supervisor).

3. Send the complete set of application documents to: **Dr. Luc Brouillet, Vice-President CBA/ABC, IRBV, Université de Montréal, 4101 est, rue Sherbrooke, Montréal, Québec H1X 2B2. FAX: 514-872-9406.**

4. The CBA/ABC President will appoint a **Student Awards Committee** to screen all applications, to recommend the candidates for awards and the amount of each award. The sole selection criteria shall be those of academic merit.

5. Macoun Bursary winners will be notified before the registration deadline for the annual meeting, if possible, and awards will be paid at that time. During the awards ceremony at the CBA/ABC Annual Meeting in Montréal, Macoun Bursary winners will be officially announced and presented with an award certificate.

LA BOURSE DE VOYAGE JOHN MACOUN

La bourse de voyage John Macoun, établie en l'honneur de l'homme qui, dans l'exercice de ses fonctions en tant que botaniste, a participé à 5 expéditions majeures à travers le Canada de la fin du 19^e siècle au début du 20^e siècle, est allouée à un étudiant qui présente une communication orale dans le cadre de la compétition Lionel Cinq-Mars.

Eligibilité:

1. La compétition pour la bourse est ouverte **aux étudiants canadiens au Canada ou à l'étranger**. Les étudiants qui sont éligibles sont encouragés à remplir une demande même si la rencontre annuelle de l'ABC/CBA se tient à leur université.

2. Le concurrent doit présenter **une communication dans le cadre de la compétition Lionel Cinq-Mars** à la rencontre annuelle à Montréal.

3. Un étudiant ne peut pas recevoir plus d'un prix de fonds Macoun pour la période durant laquelle il est inscrit à un programme spécifique de degré universitaire.

Procédure:

1. Les étudiants doivent faire parvenir leur demande pour la bourse de voyage **au plus tard le 28 février 1997.**

2. La demande doit contenir les documents suivants:

a) **une copie du résumé de la communication** pour la compétition Lionel Cinq-Mars à la rencontre annuelle de l'ABC/CBA et une copie du formulaire d'inscription aux prix.

b) **une lettre d'appui de la part du directeur de thèse de l'étudiant** qui doit également inclure une déclaration que l'étudiant en question est inscrit à un programme de maîtrise ou de doctorat.

c) **un compte rendu des dépenses** prévues par l'étudiant.

d) **le curriculum vitae** de l'étudiant [une page seulement]

e) **une lettre de référence** d'un membre du comité de direction de l'étudiant [directeur de thèse exclu]

3. Veuillez faire parvenir la demande complète au vice-président de l'ABC: **Dr. Luc Brouillet, IRBV, Université de Montréal, 4101 est, rue Sherbrooke, Montréal, Québec H1X 2B2. FAX: 514-872-9406.**

4. Le président de l'ABC/CBA nommera les membres d'un comité de sélection de prix estudiantins. Ce comité examine les demandes et recommande les candidats pour certains prix et le montant alloué pour chaque prix. Le seul critère d'évaluation sera celui du mérite académique.

5. Les gagnants de la bourse Macoun seront avisés avant la date finale d'inscription pour la rencontre annuelle, si possible, et les prix leur seront remis à ce moment-là. Durant la remise officielle des prix à la rencontre annuelle à Montréal, les gagnants de la bourse Macoun seront annoncés et un certificat leur sera présenté.



John McNeill Steps Down

John McNeill, Director of the Royal Ontario Museum since 1991, ended his directorship on February 1, 1997, taking the title Director Emeritus and returning to botanical research activity. Professor McNeill moved to the ROM as Associate Director in charge of Collections and Research in 1989, having previously been Regius Keeper (director) of the Royal Botanic Garden, Edinburgh. He became Acting Director of the ROM 10 months later and was confirmed as Director in March 1991; his initial five-year term was extended last year. As Director Emeritus, McNeill will have an initial period of administrative leave, but, although he will be visiting and working at a number of institutes for short periods over the next year or so, he will continue to be based at the ROM, and except, perhaps, for a few months in late 1997, does not expect to be away from Toronto for more than a few weeks at a time.

His initial emphasis will be to deal with a backlog of work that has accumulated on existing projects, most notably the *Flora of North America*, for which he is an editor and author for parts of an imminent volume, as well as Nomenclatural Advisor to the project. He will also continue his current activities in, for example, bionomenclature and as new Chairman of the *IOPI* project.

Apart from the change in title, his postal and e-mail addresses are unchanged, but his telephone and fax numbers change. Address and contact information (from 1 February 1997): Director Emeritus, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario M5S 2C6. Telephone and Fax: 416-586-5744

NOMINATIONS

THE J.S. ROWE ECOLOGY AWARD

The Ecology Section of the CBA/ABC has established the J.S. Rowe Prize for the best paper published by an undergraduate or graduate student. The first award was made last year at the Charlottetown meeting and we intend to make the second award at the Annual Meeting of the CBA/ABC in August 1997 in Montréal.

Eligibility: The terms of the award require that the student must be the sole or first author of the paper and that a paper must be nominated within one calendar year of the official publication date of the journal article. For the second award, we will consider papers published in 1996 from any recognized refereed journal. The student must be a Canadian citizen and/or have done the work for the paper in Canada. The paper must have been published while the candidate was a student or within 2 years of graduating if the paper is based on work done by the student.

Documentation: The nomination should include a reprint of the paper (or a proof copy of the paper plus a letter from the Editor of the journal stating that this paper is in press with a 1996 publication date). Evidence should also be supplied to show that the nominee was either an undergraduate or graduate student at the time that the research was done and the paper written (a letter from the chief supervisor would be appropriate).

Nominations may be sent either to:

Dr. K.A. Frego, Secretary
Ecology Section, CBA/ABC
Department of Biology
University of New Brunswick
P.O. Box 5050
Saint John, NB E2L 4L5
FAX: (506) 648-5650

or to:

Dr. P.B. Cavers, Chairman
Ecology Section, CBA/ABC
Department of Plant Sciences
University of Western Ontario
London, ON N6A 5B7
FAX (519) 661-3935.

The nomination must be received by **April 1, 1997**. The winner will be selected by a panel composed of the executive members of the Ecology Section.

TAYLOR A. STEEVES STUDENT AWARD IN PLANT STRUCTURE AND DEVELOPMENT

Applications for the 1995 Taylor A. Steeves Award are now being accepted. If you are a graduate student involved in Plant Structure and Development, or if you supervise or know someone who may be eligible for the award, please read this announcement carefully. This annual award was established to honour the many-faceted contributions of Professor Taylor A. Steeves to the advancement of Botany in Canada. Professor Steeves has made significant contributions to our current understanding of plant morphology and development through research papers and textbooks. He was the editor of both the Canadian Journal of Botany and the Botanical Gazette. As a teacher and researcher, he displays an enthusiasm for plants and an ability to make even the most complex concepts seem understandable. The award is intended to symbolize these attributes so aptly displayed by Professor Steeves.

Eligibility: All students who have graduated from or are currently enrolled in a Canadian university, or Canadian students who have studied abroad, in the area of Plant Structure and Development are eligible.

Conditions: The award will be given for the best Plant Structure and Development paper published in 1996 (in French or English). Papers published in late 1995 but not available in reprint form in time for the 1995 deadline (April 30, 1996) will be considered eligible. Papers can only be submitted once. The judging committee will take into account originality, scientific significance, presentation and the use of language, and its decision will be final. Although it may be preferable that the student be the sole author of the paper, joint papers will be considered, if they are accompanied by a statement on university letterhead, signed by the authors, estimating the percentage responsibility of each author for: (1) the ideas that led to the initiation of the project; (2) the actual research skill demonstrated; (3) the writing of the manuscript. **All applications should be submitted by the student's supervisor**, and should include **FIVE** copies of each of the following: (a) the actual publication (only one submission per applicant); (b) the candidate's curriculum vitae, including current address and e-mail information; (c) a statement indicating that this student is currently enrolled in a degree program, or has completed such a program during the calendar year for which the award is to be made (except for extenuating circumstances with respect to timing of publication as noted above); and, (d) a statement from the supervisor, the student, and any co-authors, establishing responsibility for the paper as outlined above.

Applications and supporting documents should be sent, before **April 30, 1997**, to:

Dr. Bill Remphrey
Department of Plant Science
University of Manitoba
Winnipeg, Manitoba, Canada R3T 2N2

**NOMINATIONS REQUESTED
A. E. PORSILD AWARD
SYSTEMATICS AND PHYTOGEOGRAPHY
SECTION**

The Systematics and Phytogeography Section of CBA/ABC has established the A. E. Porsild Award to recognize the best paper published by a student (undergraduate or graduate) during the previous calendar year. The student must be either a Canadian citizen, or must have done the research for the paper at a Canadian institution. We hope to present this award at the annual CBA/ABC meeting which will be held in conjunction with AIBS in Montreal in August, 1997.

Eligibility:

As noted above, the student must be either a Canadian citizen, or must have the research for the paper at a Canadian institution. The student must be the sole or first author of the paper. The paper must have been published within the previous calendar year (in this case, during 1996). Papers published in any area of systematics and/or phytogeography are eligible. Only single papers will be considered (i.e., if papers were published as a series, then the nominator should select one for assessment by the judging panel).

Documentation:

The nomination should include a reprint of the paper, as well as evidence that the primary author was an undergraduate or graduate student at the time the research was done and the paper written (a letter from the supervisor would be appropriate).

Nominations should be sent to:

**Dr. William J. Crins, Chairman
Systematics & Phytogeography Section, CBA/ABC
Ontario Ministry of Natural Resources
Southcentral Region Science & Technology Unit
R.R. 2, High Falls Rd. at Hwy. 11
Bracebridge, Ontario, P1L 1W9
FAX: (705) 645-7379**

Nominations should be received by 1 May 1996. The winner will be selected by a panel composed of the executive members of the Systematics and Phytogeography Section.

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**PRESENTATION AT CHARLOTTETOWN
OF THE FIRST J.S. ROWE AWARD**

The following is the text of the citation given by Paul Cavers, Chair of the Ecology Section, on the occasion of the presentation of the first J.S. Rowe Award to Maciej Biernacki at the Annual Meeting in Charlottetown.

It gives me a great deal of pleasure to be able to present the first J.S. Rowe Award for the best paper published in the area of plant ecology by a graduate or senior undergraduate student.

The award has its origins in the 1990 CBA/ABC meeting at the University of Windsor when the organizing committee, spearheaded by Dr. Mike Weis, suggested that at least a portion

of the profits from that meeting should be used to establish a student prize in the area of plant and fungal ecology. A formal motion to this effect was passed at the 1991 Edmonton meeting and collections for the award were solicited. Dr. Norm Kenkel, Chair of the Ecology Section, was instrumental in establishing this award. In 1994 at Calgary it was agreed to name the award after Dr. J.S. Rowe and a subcommittee was set up to finalize arrangements for the award. This committee, consisting of Kate Frego, Isobel Waters and Paul Cavers, reported back to the 1995 meeting in Guelph when details were finalized and it was agreed to make the first award in 1996 for a paper published in 1995. The Ecology Section actively publicized this award during the past year, with the result that 11 nominations were received, all for papers in recognized international journals. The quality of all of these papers was very high.

Before I present this award, I want to say a few words about Stan Rowe. Dr. J. Stan Rowe was the first chairman of the Ecological Section of the CBA/ABC. He took the lead in publicizing the CBA/ABC among Canada's plant ecologists, with the result that virtually all of them signed up, and the Ecology Section soon became the largest section within the CBA/ABC. Stan was also responsible for a number of initiatives to connect Canadian plant ecologists with their colleagues around the world. Stan's professional career was in forest ecology and he is probably best known for his "*Forest Regions of Canada*", a copy of which was auctioned off following the lobster supper on Monday night. Stan now lives in retirement in British Columbia, and he has graciously agreed to our suggestion that the award be named in his honour.

The judging for this year's award was done by the executive of the Ecology Section. The final result was very close and it was agreed to award one honourable mention in addition to the prize itself. The honourable mention goes to Mr. Wayne C. Bessie of the University of Calgary for his paper entitled "The relative importance of fuels and weather on fire behaviour in subalpine forests", jointly published with his supervisor, Dr. Ed. Johnson, in Ecology **76: 747-762**.

Given the origins of this award it is interesting that the first winner comes from the University of Windsor. The winner is Mr. Maciej Biernacki for his paper entitled "Effects of trichloroethylene, plant sex and site of origin on modular demography in *Vallisneria americana*". The paper was published in the Journal of Applied Ecology, Volume **32: 761-777**. It was co-authored by Maciej's supervisors, Drs. Jon and Lesley Lovett-Doust. Maciej came to Canada from Poland. He has also lived in Russia and Germany. He is currently completing his Ph.D. studies at the University of Windsor. I am pleased that he, his wife and his family have been able to come to Prince Edward Island to allow him to accept his award in person. Maciej has taken an active role in this conference and we have enjoyed our conversations with him. It gives me great pleasure to present him with the first J.S. Rowe Award.

RECENT GRADUATES
Department of Plant Sciences,
University of Western Ontario

PH.D GRADUATES - 1994-1996

Wan, L. (March 1994) Glycosylation of peanut (*Arachis hypogaea* L.) responses peroxidases. Supervisor: R.B. van Huystee

Zhan, M. (March 1994) The ribosomal RNA phylogeny of *Kluyveromyces*. Supervisor: M-A. Lachance

Wilhelm, S.W. (April 1994) Ecological aspects of iron acquisition in *Synechococcus* sp. (Cyanophyceae). Supervisor: C. Trick

Hawke, M.A. (April 1994) Studies on the survival of microsclerotia of *Verticillium dahliae*. Supervisor: G. Lazarovits.

Perumal, J.V. (June 1994) Sand accretion and its effects on the distribution and ecophysiology of dune plants. Supervisor: M.A. Maun

Kaden, J.E. (Sept. 1994) Molecular taxonomy of the *Sporopachydermia cereana* complex. Supervisor: M-A. Lachance

Maxwell, D.P. (July 1995) Photosynthetic acclimation to light and temperature: excitation pressure and redox sensing. Supervisor: N.P.A. Huner

Celerin, M. (Sept. 1995) Characterization of fungal fimbriae. Supervisor: A.W. Day

Doucet, C. (Sept. 1996) Seed colour variation, dormancy, and seed banks in the bull thistle, *Cirsium vulgare* (Savi) Ten. Supervisor: P.B. Cavers

Gray, G. (Sept. 1996) Cold acclimation: a complex interaction of low temperature, light and the redox state of photosynthesis. Supervisor: N.P.A. Huner

M.Sc. GRADUATES - 1994-1996

Maillet, D.S. (January 1994) Recombinant inbred mapping of ubiquitin genes in *Zea mays* L. Supervisor: D.B. Walden

Campbell, W.S. (July 1994) Characterization of superoxide dismutase genes from the cyanobacterium *Plectonema boryanum* UTEX 485. Supervisor: D. Laudenbach

Govinthasamy, T. (September 1994) Effects of smut, mechanical damage and emergence time on seed characters of fall panicum (*Panicum dichotomiflorum* Michx.). Supervisor: P.B. Cavers

Richman, A.S. (September 1994) RFLP stability in *Zea mays* L. inbred lines maintained in two different locations. Supervisor: D.B. Walden

Murphy, K.E. (May 1995) Microbial ecology of a freshwater fish kill. Supervisor: C. Trick

Tavares, S.C. (May 1995) Enzyme polymorphism in lichens in relation to radionuclides in the environment. Supervisor: D. Fahselt

Bates, K.J.A. (June 1995) An RFLP analysis of genotypic and callus culture-induced DNA variation in *Zea mays* L. Supervisor: D.B. Walden

Smisek, A.J.J. (June 1995) The evolution of resistance to paraquat in populations of *Erigeron canadensis* L. Supervisor: S. Weaver

Rooney, N.M. (June 1995) Phytoplankton community change in an experimentally acidified lake. Supervisor: C. Trick

Meier, L. (July 1995) Variation in seeds of *Onopordum acanthium*. Supervisor: P.B. Cavers

Swanson, A.K. (July 1995) Ultraviolet exposure in relation to polyphenolics in the foliose lichen *Umbilicaria americana* Poelt & Nash. Supervisor: D. Fahselt

Little, L.R. (August 1995) Plant-parasitic nematodes and arbuscular mycorrhizal fungi influences on sand dune vegetation. Supervisor: M.A. Maun

D'Ulisse, A. (August 1995) The population ecology of *Cirsium pitcheri* on Lake Huron sand dunes. Supervisor: M.A. Maun

Malko, M. (Sept. 1995) Peroxidase and cadmium in peanut plants and cells. Supervisor: R.B. van Huystee

Phillips, T. (Sept. 1995) Effect of simulated herbivory by white-tailed deer on *Cirsium pitcheri*: a rare plant species. Supervisor: M.A. Maun

Subarsky, P. (Sept. 1995) Characterization of genes encoding alternative permease complexes capable of transporting sulfate in the cyanobacterium *Synechococcus* sp. PCC 7942. Supervisors: D. Laudenbach & N.P.A. Huner

Cherutti, J. (June 1996) The over and under expression of HSP90 in transgenic tobacco plants. Supervisor: P. Krishna

Gilpin, A. (July 1996) Identification of a gene involved in cysteine biosynthesis encoded in the cyanobacterial genome of *Synechococcus* sp. PCC 7942. Supervisors: D. Laudenbach & N.P.A. Huner

Schmitz, N. (August 1996) Characterization of soybean (*Glycine max*) peroxidase. Supervisor: R.B. van Huystee

Thanks to Paul Cavers for submitting this information.

Report from First CBCN Workshop Royal Botanical Gardens, September 6-8, 1996

On the weekend of September 6-8, 1996, The Canadian Botanical Conservation Network (CBCN) hosted its first workshop "Partnerships for Plants: Biodiversity, Conservation and Botanical Gardens in Canada". Around 40 people from botanical gardens, universities, provincial and federal governments, NGOs and private companies attended the workshop which was held at the Royal Botanical Gardens, Burlington, Ontario. The workshop consisted of three days of sessions, each running 90 minutes. The objective of the workshop was to discuss and assemble ideas and information about the importance of the conservation of biological diversity and the role of botanical gardens and related organizations in this objective. The first day was used to discuss and develop the CBCN concept itself, and look at its niche among other institutions dealing with conservation issues. We concluded that CBCN was necessary to improve the level of communication between plant conservation agencies/institutions in Canada and enhance public education/awareness on these issues.

The second day focused on conservation issues such as the use of umbrella species to increase public awareness, potential of habitat restoration and species reintroduction, maintenance of genetic diversity and the Canadian strategies for Biodiversity. Again the main concern that came back on the second day was the need for enhancing public awareness and improving public education. The final day of the workshop aimed at defining team strategies and partnerships to take on projects or issues related to conservation. We thus look at how to operationalize CBCN in helping others with research and education agendas.

As a participant and a session leader, I was impressed by the ideas and energy that were put into this workshop and its success can be attributed to the following aspects:

- the organizers, especially Dr. David Galbraith, were all prepared and helpful, and a facilitator was always present to orientate the discussion;
- although we came from various organizations, with in some cases conflictual activities or mentalities, we all expressed similar concerns and stressed the need for cooperation which can happen through CBCN;
- all participants were convinced that we had to improve communications, exchange ideas, techniques, priorities and programs in the area of conservation using an integrative approach.

The main concern was the improvement of public education in the areas of botanical conservation. As botanists, plant taxonomists, ecologists or conservationists, at some point in our activities, our role is related to public education or information. The fundamental challenge is to find valid arguments to convince humans of the crucial roles of plants (from individual species to ecosystems) in our lives. Without making this effort, plant conservation will always remain a poorly funded activity with low priorities in comparison with animal conservation. The use of umbrella species may be a way to improve our status, and other solutions can be found. For now, the CBCN appears to be capable of playing a part of this role.

As the CBA/ABC is concerned with the issue of conservation, it becomes important that activities and ideas are exchanged between the two organizations. The question is now: what will the CBCN do for the CBA/ABC or, vice versa, what will the CBA/ABC do for CBCN? What are the possible links? In the future, better cooperation may be needed between organizations in order to influence authorities in some decision makings or to initiate some research activities. The next step may be to look at the common ground for building links and find the specialties of each organization. **Comments will certainly be welcomed!**

Concluding Recommendations of Participants

The diversity of plant life is one of the fundamental factors sustaining life on earth. The quality of the air that we breathe, the water that we drink, the foods that we eat, the medicines we need and many of our economic activities depend on an immense variety of free-living and cultivated plants. As important as the economic value of plant biodiversity are less obvious, but no less profound, contributions that thousands of species of plants make to our daily lives. Despite its beauty, its contribution to our gardens and our wilderness, despite forming the living fabric of our natural and landscaped habitats, and despite being the source of energy for all other living creatures, the diversity of plant life is tragically undervalued and frequently wasted by our society.

The conservation of this precious plant biodiversity, both nationally and globally, is of grave concern to the participants of the first workshop of the Canadian Botanical Conservation Network. Despite an increase in conservation awareness in Canada over the past three decades, numerous factors continue to erode that diversity and our capacity to protect it. Conversion of natural habitats to urban, industrial and agricultural uses, fragmentation of remaining habitats, needless destruction of sensitive natural areas, funding difficulties for public institutions and ignorance of the consequences of common human activities have generated a crisis that threatens the survival of many natural habitats and endangered plant species, and may threaten many other species and habitats in the near future.

Central to addressing these pressing issues is the development of a national forum for exchanging ideas on plant conservation issues and practices, which does not yet exist. The Canadian Botanical Conservation Network should be that forum. By starting with the botanical gardens and arboreta of Canada and developing an inclusive, truly national approach, the CBCN will reach out to cooperate with the many stakeholder groups already working in the field of plant conservation. The network is also well suited to develop pilot cooperative research, educational and practical projects involving members and stakeholders.

We will recommend to our respective institutions that they participate in the CBCN as members or seek to develop other ties of cooperation and participation in supporting the network effort. Through participating in the CBCN, we seek to increase our own effectiveness and the effectiveness of our institutions in raising public awareness of plant conservation issues, in participation in conservation programs and in the exchange of information, ideas, techniques and materials.

Revised Mission Statement

- The mission of the Canadian Botanical Conservation Network is to aid the organizations of Canada that are concerned with the conservation of the diversity of plant life, such as botanical gardens, arboreta, universities, government agencies and others to realize their potential to contribute to the conservation of biological diversity.
- By facilitating the exchange of information among the professional community engaged in botanical conservation, the CBCN increases the effectiveness of the many efforts being made to protect and conserve our natural and cultivated botanical heritage.
- By developing educational materials and seeking to raise public awareness of the value of plants and the need for their conservation, the CBCN contributes to the public understanding of the role of plant conservation for the future of a sustainable society.
- By leading cooperative research and practical projects that engage the capabilities, ideas and objectives of participating organizations, the CBCN directly contributes to the implementation of Canada's Biodiversity Strategy and the international Botanical Gardens Conservation Strategy.
- Through communication, education and practical projects in plant conservation, the CBCN promotes the conservation of endangered or rare plants, plants that constitute important cultural, historic or economic genetic resources, and the ecosystems and habitats that sustain them.

Liette Vasseur

Dept. of Biology, St. Mary's University, Halifax, NS

BOOK REVIEW

Fowden, L., T. Mansfield and J. Stoddart. 1993. Plant Adaptation to Environmental Stress. Chapman & Hall, London. 346pp.

The present monograph was produced as proceedings of an International Symposium on "Plant adaptation to environmental stress" sponsored by the Rank Prize Funds. It explains, through the work of several authors, the actual knowledge about plant adaptation from genes to ecosystems. The book also examines different aspects of environmental stress as initiators of the process of adaptation. The word "stress" has become very common in most biological disciplines, from physiology and molecular biology to ecology and environmental science. With environmental changes occurring worldwide due to human activities, plant biologists have the tremendous task of trying to understand how plants can better adapt to these new sets of environmental stress.

The greatest challenge of such a book is to define environmental stress and adaptation. Both terms are often overused or misused. Unfortunately, in this book, both terms are still vaguely defined. The word adaptation changes in significance from chapter to chapter. The editors should have established a common framework for the authors in order to reduce confusion. In some chapters adaptation is referred to as specialization while in others, as acclimation.

A total of 18 chapters relate adaptive mechanisms of plants to various types of environmental stress. Chapters 1 to 5 examine plant adaptation at the community and ecosystem levels, chapters 6-10 look at the whole individual plant responses while metabolic and genetic adaptive responses to environmental stress are discussed in chapters 11-16. Finally the last two chapters treat two other classes of biotic environmental stress: infection by pathogens and mutualistic fungi, and plant-plant interactions. To bring this range of topics in one book represents a challenge as each discipline has its own terminology and background on adaptation and environmental stress. The challenge is quite well fulfilled. Except for a few chapters the material is very well delivered and easy to understand. Chapter 2, written by W.H.O. Ernst, is an example of an excellent comprehensive review of population dynamics and the influence of environmental factors on growth parameters. Among the types of environmental stress, metal and atmospheric (e.g. sulfur) pollution is examined. Unfortunately, a few chapters (such as ch. 11 and 17) were more difficult to read and plant responses to environmental stress were not necessarily discussed in the context of adaptation. One has to be careful in interpreting any response to environmental variation as adaptive. For example, as Bachmann (ch. 16) points out, changes in genome size may occur regularly as part of normal development or in response to environmental stress. To conclude that such responses are adaptive to a specific environmental stress is another step.

Most contributing authors have attempted to link their review to the broader perspective of plant adaptation to environmental stress. This certainly helps in sharing ideas among several disciplines, as they are all interacting components of life. For example, Rees and Lawton (ch. 4) indicate that although stress may reduce plant performance, "it does not necessarily mean that populations will decline, disappear or become less stable" (p. 80). Several aspects must be considered not only at the plant level but also in terms of frequency and duration of stress.

Pollock *et al.* (ch. 6) efficiently summarize actual knowledge of temperature-stress response and protein changes as adaptive alternatives to heat shock. The introduction of chapter 8, by Mansfield and Pearson, represents another example of how the editors and the authors were able to explore this common topic at different levels of organization and in response to various environmental stresses. In chapter 8, the impact of ozone pollution is examined in the light of physiological adaptive mechanisms.

Overall, this book represents a good review and an important contribution to several fields of plant biology. If the terms, adaptation and environmental stress, were defined at the beginning of the book, it would have made it easier to understand the tangents taken by some authors. Now, another monograph should be produced to examine the interrelated effects of the whole series of adaptations that a species exhibits instead of a series of disconnected responses at different levels of organization. There is a need to analyze adaptive responses in function of plant strategies that are reflected at all the levels of organization from cells to populations.

Liette Vasseur, Dept. of Biology, Saint Mary's University

**Poorly Known Economic Plants of Canada -
12. Bloodroot, *Sanguinaria canadensis* L.**

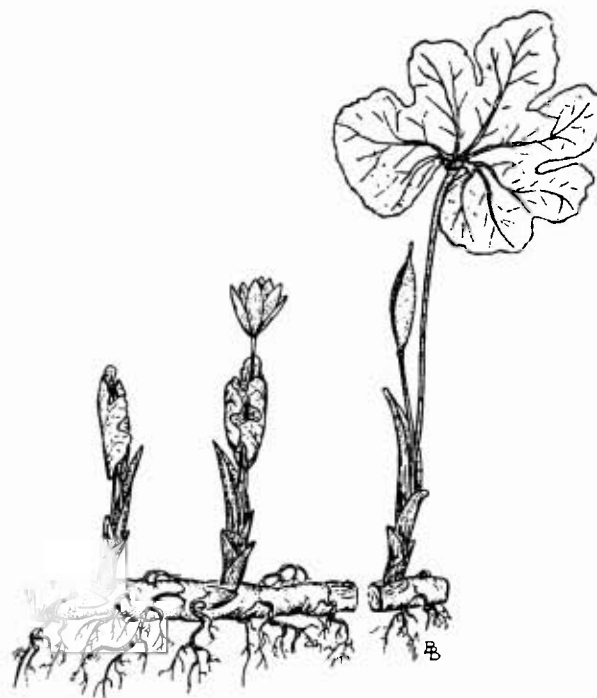
E. Small and P.M. Catling, Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-food Canada, Saunders Bldg., Central Experimental Farm, Ottawa K1A 0C6

Common Names: Bloodroot, Puccoon. French: sanguinaire, sanguinaire du Canada.

Note: The genus name *Sanguinaria*, latin for bloody, as well as the common names, reflect the orange-red latex which oozes as a juice from damaged areas of all parts of the plant, but especially from the rhizome.

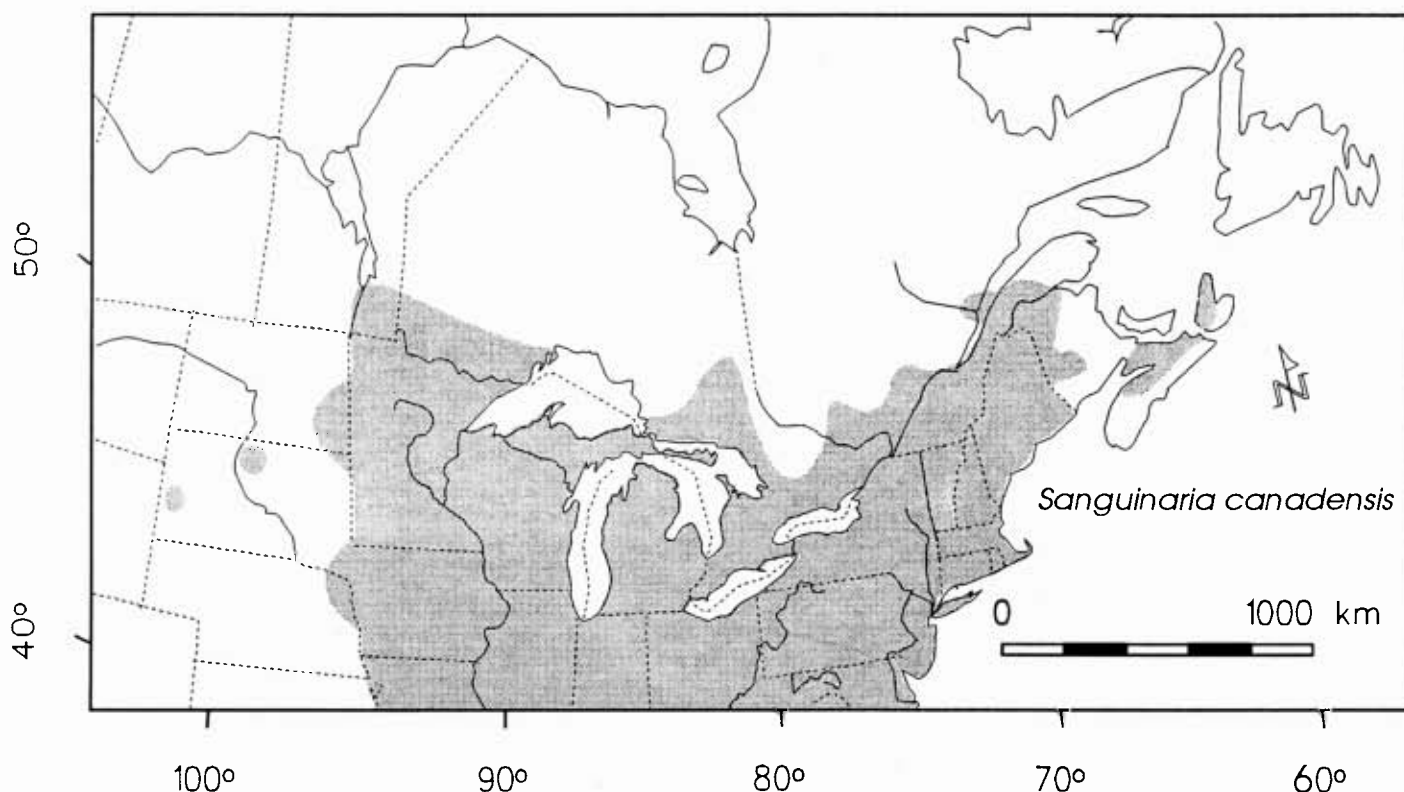
Sanguinaria canadensis in the poppy family (Papaveraceae) is the only species of its genus. It is a low-growing (ca. 15 cm high, occasionally to 50 cm) perennial herb, produced from a branching, horizontal, reddish-brown, succulent rhizome, from which stems arise aerially at various points, while beneath the ground there are many adventitious roots. Each stem generally produces a solitary basal leaf (sometimes two), which in its early development envelops and protects a single long-stalked flower 2.5-5 cm broad (or even larger in cultivated plants), with 4-16 fugaceous white or rarely pink petals (more in a cultigen, as noted below). Flowering occurs in very early spring. As flowering progresses, the leaf continues to grow, developing a striking orbicular or reniform blade 6-30 cm broad, with 6-9 palmately arranged lobes, the lobes themselves sometimes lobed. The petioles arise beneath the ground, and may elongate to as much as 30 cm, so that the mature leaf overtops the fruit. The solitary, narrow capsule is 3-6 cm long, and splits when mature into two persistent valves, releasing the numerous 3 mm long seeds, each with a large crest.

Bloodroot is indigenous to eastern and central Canada and the U.S., occurring from Nova Scotia west to Manitoba and Nebraska, and south to Alabama, Arkansas and Florida. It is more common inland than on the Coastal Plain, and sometimes has become infrequent in areas where it has been gathered for medicine. Plants of the southern U.S. range are sometimes segregated as var. *rotundifolia* (Greene) Fedde. Bloodroot grows best in shaded, cool, moist open hardwood groves and on well-drained woodland slopes, on circumbasic soils. In favourable situations, large colonies may be formed, although sometimes only scattered individuals are encountered.



The attractive flowers have no nectar and the plant self-pollinates readily. However, the blossoms can supply some pollen to foraging insects. Several species of ants are attracted by small, oily protuberances on the surface of Bloodroot seeds. The ants carry the seeds to their underground nests. It has been suggested that this increases seed survival and seedling establishment, reducing losses from foraging insects, birds and rodents. Dispersal of seeds by ants, i.e. myrmecochory, is a widespread symbiotic relationship. The ants benefit by consuming the *elaiosomes* (nutritive tissues of the propagule developed specifically for the ants), while the plants benefit by having their seeds planted, often in areas rich in soil nutrients. Seneca snakeroot, discussed earlier in this series, is also ant-dispersed.

Bloodroot is cultivated in gardens for its showy flower and striking foliage. As an ornamental, it is most useful as an early-flowering border plant in shady locations. Because it is uncommon, it should not be transplanted from the wild, but rather established from seeds or from horticultural suppliers who have propagated their stock, not merely collected wild plants. The petals of wild plants are easily lost to wind and rain, but a popular mutant form with extra petals, called "Peony flower" and "Double Bloodroot", or known by the cultivar names 'Multiplex' and 'Florepleno' arose in the Midwestern U.S. about 1950. This has extra petals



in place of the stamens, but is sterile, and must be cultivated from rhizomes and not from seeds.

The reddish juice of Bloodroot is a very effective dye, and was much used by Indigenous Peoples as a body paint, and to decorate baskets, weapons, implements and clothing (hence the name "Indian Paint"). Early colonists also used the plant to dye cloth, and it was exported to Europe for this purpose. Some Indian groups also employed Bloodroot in religious services, and as an insect repellent. Perhaps the most interesting usage of the juice was by bachelors of the Ponca tribe, who used it as a love charm. Applying the red juice to the palm and shaking hands with the woman they wanted to marry was believed to induce consent.

Traditional uses of Bloodroot have largely been abandoned because of the toxicity of the plant, although it has been established that Bloodroot has antimicrobial and antitumor properties. In toxic doses, Bloodroot acts as a poison to the voluntary muscles, producing vomiting, sensations of burning in all

contacted mucous membranes, tormenting thirst, faintness, vertigo, dimness of vision, cardiac inhibition, and possibly death. Although potentially deadly, fatal consumption of wild plants of Bloodroot does not seem to have been recorded in North America, either for people or animals, presumably because the bitter, acrid taste discourages consumption of a dangerous amount.

Traditionally, Bloodroot was commonly used by North American Indigenous Peoples before the arrival of European settlers, for such ailments as rheumatism, asthma, bronchitis, laryngitis and fevers. It was frequently employed orally as an emetic and as an expectorant (especially in treating bronchitis), and topically as an ointment for skin ulcers and cancers, both by Indians and settlers, and these usages were continued in modern western medical practice of the early part of this century. Despite its toxicity, Bloodroot continues to be used in medicine, and is present in more than a dozen commercial preparations marketed in Canada, usually as expectorants, cough syrups and tinctures. It is no longer recommended as an

emetic. The most promising modern medical use of Bloodroot arises from its bacteriostatic properties against oral plaque-forming organisms. Sanguinarine is the active ingredient in an anti-plaque, anti-gingivitis oral rinse and a tooth paste.

The physiological activity of Bloodroot is due to benzophenanthridine alkaloids, found mainly in the rhizomes, and constituting 3-9% of the rhizomes. Sanguinarine makes up 50% or more of these alkaloids, and is considered the most important. The older rhizomes have more sanguinarine than the younger. Sanguinarine is water-soluble, and is responsible for the orange-red colour of the latex of Bloodroot. It has been shown that there is a north-south ecocline in the U.S. in sanguinarine content, the southern population having a higher content. Several of the alkaloids present also occur in opium (not surprising since opium poppy and Bloodroot belong to the same family, the Papaveraceae), and have some feeble narcotic potential. Sanguinarine strongly inhibits root rot fungi, and may protect the perennial rhizome from fungal disease.

Most Bloodroot rhizomes acquired for commerce come from harvesting wild eastern U.S. plants. Rhizomes of plants that are 2 or more years old are excavated in late summer, and dried after the brittle, wiry roots are removed. In the past it was often recommended that collecting be carried out in the fall, after the foliage dies down, although more recent work suggests that the time of highest concentration of alkaloids is during or immediately after flowering. Collected rhizomes vary from 2-7 cm in length, and from 5-15 mm in diameter. The orange-red latex oozes from the broken ends, forming a reddish resinous coating upon drying.

In the last decade it has been found that sanguinarine can be obtained from alternative sources, so that cultivating Bloodroot for this chemical is doubtfully worthwhile. Sanguinarine occurs in the Asian *Macleaya cordata* (Willd.) R. Br. (*Bocconia cordata*), the plume poppy, and since this species is relatively easily cultivated it is a potential competitive commercial source of the alkaloid. Moreover, technology has advanced to the point that sanguinarine is being produced commercially from tissue culture in large vats, for use in toothpaste and mouthwash. Nevertheless, Bloodroot extracts are the subject of considerable ongoing pharmacological research. Although cultivation is of limited agricultural interest in Canada today, the remarkable chemistry of Bloodroot is believed to have economic potential.



RECENT GRADUATES

Department of Botany, University of Guelph

PH.D GRADUATES - 1996

Lynnette Dirk - Mobilization and conversion of carbohydrate reserves in fenugreek (*Trigonella foenum-graecum* L.) seedlings. Advisor: J.D. Bewley.

Anjali Perera - Isolation, characterization and subcellular localization of wheat streak mosaic virus replication complex. Advisor: A. Nassuth.

Lekha Sreedar - Induction, maturation and acquisition of desiccation tolerance in somatic embryos of alfalfa. Advisor: J.D. Bewley.

M.SC. GRADUATES - 1996

Stephanie Butler - An investigation of an 18kD protein in the subterranean organs of dandelion (*Taraxacum officinale* Webr). Advisors: J.D. Bewley and J.S. Greenwood.

Jae Hovius - Ginseng garden fumigation, and phosphate effects on the mycorrhizal associations of American ginseng (*Panax quinquefolius* L.). Advisor: R.L. Peterson.

Claudia Schaefer - Plant community structure and environmental conditions of alvars of the Bruce Peninsula, Ontario, Canada. Advisor: D.W. Larson.

Kevin Stevens - Responses of *Lythrum salicaria* L. to a water gradient, and its methods of vegetative spread. Advisor: R.L. Peterson.



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 newspapers 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.



Thigmorphogenesis

You can now add this word to your botanical vocabulary. Researchers at Sussex University have proven that regular stroking or brushing of plants will cause them to produce more compact plants which have more branches, leaves and flowers (fruit and seed yield are still under study). This finding validates the use of mechanical brushing systems by nurserymen in Holland and Japan to produce more compact, robust plants for sale. The researchers speculate that mechanical stimulation may act by influencing the flow of calcium ions across cell membranes.

The Times (London), December 3, 1996



Chewing gum stops Ear Ache

Research published in the British Medical Journal implies that chewing gum that contains the artificial sweetener xylitol could be an easy cure for children who have chronic ear infections. Xylitol is found in such plants as birch, maple and corn (cobs), and is used in chewing gum to prevent tooth decay. Researchers found that regular doses of xylitol cut ear infections in children by up to 50%.

Globe and Mail, November 16, 1996



"Rare Dung Causes a Stink"

With such a catchy headline this article was a "must read" for your editor, and it turned out to have a botanical connection. Vicky Myers, a student at Hull University, has a M.Sc. project which will involve the examination of about one kilo of rhinoceros dung in order to determine the preferred vegetation (mainly grasses) which have been eaten. However, a snag developed when British Customs officers seized her research material because it contravened the international agreements which ban trade in the products of endangered species. Obviously the Customs officers would normally encounter such things as ivory from elephant tusks or skins of lions and tigers, but you must agree with them that

dung is most definitely a "product" of the endangered rhinos. Since the specialized equipment needed to analyze the dung is at Hull, Vicky's advisor has decided that it would be better to go through the mound of paperwork necessary to get an import permit than to try to find an African lab where the research could be done.

The Times (London), December 10, 1996



Pollen Police

Albuquerque (New Mexico) city council has passed an ordinance banning the "sale, cultivation, importation or planting of pollen-producing trees". Isn't there some basic botanical knowledge that seems to be lacking in the brains of the councillors? Anyway, the "pollen police" can charge any and all outlaws trafficking in such contraband as elms, mulberries, cypresses and male junipers. Tree lovers say that the council is replete with people allergic to grass or weed pollen and that the councillors have unjustly fingered the trees as the culprits, since they can do nothing about the grass pollen which blows into town from surrounding areas.

New York Times, December 22, 1996



Elderberry as Influenza Fighter

Drinking elderberry extract may be an effective way to combat the influenza virus. Apparently it contains compounds which prevent the virus from entering human cells. Many people feel relief from flu symptoms within 24 hours of taking the extract. And, as this note says, "even if too much is eaten, the most damage it causes is a bellyache".

Globe and Mail, November 9, 1996



Mistletoe Rescue in N.Z.

A New Zealand mistletoe (*Peraxilla tetrapetala*) is threatened by the voracious appetite of an introduced Australian possum (which was mentioned in a previous Plant Press item). Recently researchers discovered that its unusual flowers (which don't open unaided) are pollinated by two species of honey eaters (tuis and bellbirds). To get at the nectar the birds have to vigorously twist the tip of the closed flower, which then bursts open, spraying the bird with pollen. These birds, however, are both declining in number, presenting a further threat to the survival of the mistletoe. To the rescue comes a tiny solitary bee (genus *Hylaeus*), which researchers were astonished to observe working 20-40 seconds at the flower tip in order to get the flower to spring open (the birds can do it in the blink of an eye). The flower can self pollinate, but seed production is relatively poor. Compared with self pollination, bird pollination triples the number of seeds formed per flower whereas bee pollination only doubles seed production.

New York Times, December 24, 1996



Giant Dwarf

Still on the subject of mistletoes comes this story from B.C. of the discovery of a giant specimen of the dwarf mistletoe that grew on a branch of a western hemlock tree near Port Alberni. This specimen is huge compared with normal specimens of dwarf mistletoe (167 cm long, 76 cm in circumference). The article notes that mistletoe destroys four million cubic meters of timber in B.C. each year (it causes irregular branching and soft, useless wood). The giant specimen will be put on display at the Pacific Forest Centre.

*Thanks to Shannon Berch for sending in this clipping.
Patrick Murphy, Victoria Times Colonist, Dec. 19, 1996*



Calming Odors

Psychologists measuring the effect of various food odors on theta brainwaves (associated with levels of attention) have found that chocolate and spearmint odors are the best ones for decreasing theta brainwaves (which results in a powerful calming effect on the test subjects). Synthetic strawberry boosted the production of theta waves, but hot coffee odor had little effect. So ... to keep calm, drink or eat chocolate and chew spearmint gum.

Jeremy Laurance, The Times (London), December 18, 1996



Lethal Mushroom now in B.C.

A deadly mushroom, *Amanita phalloides*, which is common in Oregon and California (and has caused deaths), has been found in the Fraser Valley of B.C. Tom Tatum, a spokesperson for the Vancouver Mycological Society, said that members were unaware of this mushroom ever being found in B.C. He noted that the mushroom toxin destroys the liver and central nervous system and that "even touching one of these mushrooms before eating a sandwich is enough to make you sick". The mushroom grows under sweet chestnut trees and is thought to have arrived in B.C. on the roots of imported trees.

Kitchener-Waterloo Record, October 17, 1996



Oldest Living Thing on Earth?

What may be the oldest, continuously living plant is a shrub which has been cloning itself along the gullies of a remote mountain in southwestern Tasmania for an estimated 40,000 years. The shrub, called King's Holly (*Lomatia tasmanica*), is spread over about 1.5 kilometres of two secluded gullies and is up to 8 metres tall. The clone contains the only known specimens of the plant. The Guinness Book of Records says the oldest plant is the King Clone of creosote bush (California) which is estimated to be 11,700 years old.

Toronto Star, October 19, 1996



B.C. Mushroom Rush

Thousands of amateur and experienced mushroom pickers flock to B.C.'s forests each fall to earn tax-free income. Pine mushrooms, a delicacy in Japanese cuisine and also valued as a very honorable gift item, can earn a picker from \$11 to \$45

per kilo (tax free!... so far). Unfortunately this lucrative unregulated business has attracted violence from a criminal element. Several pickers have been robbed of their mushrooms or of the cash they have obtained by selling them. There have also been incidents where armed pickers have threatened others entering their favourite areas of forest. Also to be considered is the ecological damage inflicted by thousands of pickers bounding through the bush. B.C.'s Ministry of Forestry has made some noises about regulating the industry, but nothing has been done yet.

Kitchener-Waterloo Record, January 2, 1997



Foodaceuticals or Pharmafoodicals

These are terms applied to foods which contain bioactive chemicals which can have beneficial effects in humans (or sometimes detrimental effects). Here are a few reports of such foods which appeared in the press last year.

In blueberries researchers have discovered chemicals, named anthicinems, which should benefit people who have recurring urinary tract infections (commonly caused by *E. coli*). Anthicinems work as anti-adhesives, preventing bacteria from sticking to the lining of the urinary tract and gut. Researchers think that cranberry juice, which is also recommended for people with bladder infections, may also have these chemicals (previous dogma theorized that cranberry juice created an acid environment hostile to bacteria).

A Harvard University study of 48,000 men concluded that eating 10 servings of tomatoes a week reduced the incidence of prostate cancer by 45%. This may explain the low incidence of prostate cancer in men from Italy and Greece, since both countries have diets containing large amounts of tomatoes. Researchers believe that the effect is probably caused by antioxidant carotenoids such as lycopene.

In a breast cancer study from Greece, researchers compared cancer rates in women who ate large amounts of vegetables, fruits and olive oil with those in the study who ate the least amount of these foods. Those who ate the most vegetables reduced breast cancer risk by 50%, those who ate the most fruits decreased their risk by 33% and those who consumed olive oil twice a day reduced their risk by 25%.

There is something in grapefruit juice which promotes the uptake of certain drugs into the blood. For example, patients taking calcium channel blockers for high blood pressure with grapefruit juice may have up to 3 times the blood level of the drug compared with levels that exist when no juice is consumed with the pill. Similar elevated drug levels in the blood are seen for the antihistamine terfenidine (in Seldane) and the sleeping pill Halcion. Researchers suspect that deaths attributed to Seldane might have resulted from overdoses caused by drinking grapefruit juice with the pill. On the bright side, if the active ingredient in the juice can be isolated, it could be used in pills containing lower amounts of a drug in order to deliver the same blood drug level as occurs with currently used pills.

Kitchener-Waterloo Record, August 9, 16 and 30, 1996

Meetings / congrès

Information Processing Systems

A meeting entitled: **Information Processing Systems in Plants: their Evolution and Function**, will be held at the University of California at Davis, **March 21-26, 1997**. For information, contact **Dr. Bill Lucas**, Section of Plant Biology, University of California, Davis, CA 95616. E-mail: wjlucas@ucdavis.edu

Plants and the Environment

Noorwijkerhout, The Netherlands, is the site for a meeting on **Plants and their Interactions with the Environment**, **April 20-24, 1997**. Information from: **Prof. R. Verpoorte**, Centre for Bio-Pharmaceutical Sciences, Gorlaeus Laboratories, P.O. Box 9502, RA Leiden, The Netherlands.

Systematics Symposium

Rancho Santa Ana Botanic Garden (Claremont, CA) is presenting its 13th annual Southwestern Botanical Systematics Symposium on **May 24, 1997**. The topic, **Evolution and Taxonomy of Southwestern Plants**, will address advances in our understanding of plant groups occurring in the southwestern United States and adjacent areas. The keynote speaker is Billie L. Turner, University of Texas, Austin. Other speakers include: J. Curtis Clark (on *Encelia* and relatives, Asteraceae), J. Travis Columbus (*Bouteloua* Gramineae), Gerald J. Gastony (cheilanthoid ferns), Jennifer A Matos (*Pinus*, Pinaceae), J. Mark Porter (Polemoniaceae) and Robert S. Wallace (Cactaceae). Information: **Ann Roslin**, Rancho Santa Ana Botanic Garden, 1500 N. College Ave., Claremont, CA 91711-3157, E-mail: JoslinA@cgs.edu or visit the following website: <http://www.cgs.edu/inst/rsa/1997symp.htm>

Stress

Studying Stress in Ecological Systems: Pure and Applied Perspectives is the title of a meeting to be held **June 21-24, 1997**, in Roskilde, Denmark. Obtain further information from: **Volker Loeschcke**, Department of Ecology and Genetics, Aarhus University, DK-8000 Aarhus C, Denmark. E-mail: volker@pop.bio.aau.dk

More Stress

A meeting on **The Molecular Biology of Plants under Environmental Stress** will be in Poznan, Poland, **September 17-19, 1997**. Information is available by e-mailing to: albus@hum.amu.edu.pl

Plant Biology '97

Plant Biology '97: A View from the Pacific Rim, a joint meeting of the American, Canadian, Australian and Japanese Societies of Plant Physiology, will take place in Vancouver, B.C., **August 2-6, 1997**. Information can be obtained from the ASPP website: <http://aspp.org>

Forest Ecosystem Modeling at AIBS

At the AIBS meeting in Montreal, **August 3-7, 1997**, the International Society for Ecological Modeling will present a symposium bearing the title: **Future Directions in Modeling Net Primary Productivity in Forest Ecosystems**. Obtain information from: **Dr. Guy R. Larocque**, Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, P.O. Box 3800, 1055 du P.E.P.S., Sainte-Foy, Québec G1V 4C7. E-mail: glarocque@cfl.forestry.ca

Microbial Ecology

This is early notification of **The 8th International Symposium on Microbial Ecology**, which will be held in Halifax, NS, **August 9-14, 1998**. For information, contact: **Dr. Colin Bell**, Department of Biology, Acadia University, Wolfville, NS B0P 1X0. Information is also available by e-mail [isme8@acadiau.ca]

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