THE CANADIAN BOTANICAL ASSOCIATION

BULLETIN

DE L'ASSOCIATION BOTANIQUE DU CANADA

August / août 1999 32(3) Montréal

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.
Governor General of Canada / Gouverneur général du Canada

On the inside / À l'intérieur

Page 34
Editors / La rédaction
CBA Section and Committee Chairs

Page 35
President's Message (continued) /
Le mot du président (suite)
Faculty Opening

1999 CBA Annual Meeting /
Congrès annuel de l'ABC 1999

Page 36
The George Lawson Medal
Page 37
The Mary E. Elliot Medal
1999 Award Winners

Page 38
Upcoming Congress

Page 39
Poorly Known Economic Plants of Canada
22. Wild Leek, *Allium tricoccum* Solander var. *tricoccum* and var. *burdickii* Hanes.

Page 42
Graduate Studies Project

Page 43
Book Reviews

Page 47
The WEB Press / La presse Internet

Page 48
CBA Board of Directors /
Bureau de direction de l'ABC
Future Meetings / Prochains congrès

President's Message / Le mot du président

The International Botanical Congress in St. Louis was a great success from both a scientific and a social standpoint. The participation of the Canadian Botanical Association in the different scientific and social events was certainly good for the visibility of botany in Canada. In this regard, I want to thank all those who helped to organize symposia, or presented papers, or prepared posters for this international meeting. I want to thank particularly the organisers of the three symposia that CBA helped to sponsor : "Progress in root biology : a tribute to Margaret E. Mc Cully" (Larry Peterson, Frédérique Guinel), "The phenological response to climate change" (Tim Sparks, Elisabeth Beaubien) and "Seed population dynamics" (Paul Cavers, Ken Thompson) . These symposia were very much appreciated by those in attendance.

This year, because of surplus funds garnered by the local committee in Saskatoon, CBA was able to encourage the participation of students at the International Botanical Congress. In fact, 12 travel bursaries were awarded to students who were presenting a paper or a poster at the meeting.

As scheduled, our general assembly was held Thursday morning at the early hour of 7:30. Surprisingly enough, there were as many members present as when we have our assembly slated in the afternoon! That just goes to prove how much our members take the affairs of the association seriously! At the general assembly, I had the pleasure of announcing the creation of the Iain and Sylvia Taylor Award which will be given for the best student poster at the annual meetings. This award, which was created in honour of two of our colleagues who have made an exceptional contribution to the developement of our association, will be awarded at the next annual meeting to be held in London, after the approbation of the members. Once again, the funds for this prize come from the surplus garnered by the organizing committee of the Saskatoon meeting and I want to thank Vipen Sawhney and his committee for the work they did at that meeting. Also at the general meeting, we presented the other student awards (see the list on pages 37 and 38). Congratulations to all the recipients for their excellent work and I wish them all continuing success.

At the social get-together with the Botanical Society of America, the Sociedad Botanica de Mexico and the Canadian Botanical Association, I had the great pleasure of presenting the George Lawson Medal to André Fortin and the Mary E. Elliot Medal to Vipen Sawhney, two figures at the forefront of plant biol-

Continued on page 35

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Information for submitting texts / Soumission des textes

Texts and illustrations for the Bulletin must be sent to the Editor preferably via the electronic mail (attached file) or on a diskette. Texts should be saved under "Word" and illustrations under the "TIFF" format.
If you have any question about text submission please contact the Editor.

Les textes et les illustrations pour le bulletin doivent de préférence être envoyés par courrier électronique (sous forme de fichier attaché) ou encore sur une disquette.
Les textes doivent être enregistrés sous « Word » et les illustrations sous le format « TIFF ».
N'hésitez pas à contacter le rédacteur pour toute information sur l'envoi de documents.

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CBA Bulletin / Bulletin de l'ABC

The CBA Bulletin is issued quarterly (February, May, August, November) and sent to all CBA members.
Le Bulletin de l'ABC paraît quatre fois par année (février, mai, août, novembre) et est envoyé à tous les membres de l'ABC.

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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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Si vous avez des commentaires ou suggestions concernant le bulletin, veuillez s'il vous plaît contacter le rédacteur à l'adresse mentionnée plus haut.

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Texts for the November issue must be received before October 1, 1999. Les textes pour le bulletin de novembre doivent arriver au plus tard le 1er octobre 1999.

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ogy both in Canada and abroad. It was also at the occasion of this gathering that we had the launch of the new book, "Canadian Medicinal Crops", by Ernest Small and Paul Catling, a book that will surely prove to be a benchmark in the history of Canadian ethnobotany.

To close, I hope many of you will all be able to rendez-vous for the annual meeting in the year 2000 in London, a meeting that promises to be an excellent one.

*****

Le Congrès international de botanique à St-Louis fut un grand succès tant au plan scientifique que social. La participatation active des membres de l'Association botanique du Canada à différents événements scientifiques et sociaux à contribué au rayonnement de la botanique canadienne. À cet effet, j'aimerais remercier tous ceux et celles qui ont pris la peine d'organiser un symposium, de présenter une communication ou de préparer un poster pour cette rencontre internationale. De façon plus précise, j'aimerais remercier les organisateurs des trois symposiums parainnés en partie par l'ABC : «Progress in root biology : a tribute to Margaret E. Mc Cully» (Frédérique Guinel, Larry Peterson), «The phenological response to climate change» (Elisabeth Beaubien) et «Seed population dynamics» (Paul Cavers). Ces symposiums ont été fort appréciés par les auditeurs.

L'ABC, grâce à des surplus accumulés par le comité local de Saskatoon, a voulu encourager concrètement la participation des étudiants au Congrès international de botanique. À cette effet, douze bourses de voyages ont été attribuées à des étudiants qui ont présentés un poster ou une communication orale.

Tel que prévu, l'Assemblée générale annuelle à eu lieu le jeudi à 7 h 30 du matin. Chose surprenante il y avait autant de monde, sinon plus, que lorsque nous tenons nos assemblées générales l'après-midi! Cela montre bien que les membres prennent à cœur les activités de l'Association. Lors de l'Assemblée générale annuelle, j'ai eu le plaisir, entre autres, d'annoncer la création prochaine du prix Iain et Sylvia Taylor qui sera dorénavant décerné annuellement à l'étudiant ou l'étudiante qui aura présenté le meilleur poster lors de nos congrès annuels. Ce prix nommé en l'honneur de deux collègues qui ont contribué de façon exceptionnelle au dévelopment de la botanique canadienne et de l'ABC, sera officiellement décerné lors du prochain congrès annuel à London, après approbation par l'ensemble des membres de l'ABC. Les fonds qui supportent ce prix proviennent encore une fois de surplus accumulés par le Comité local de Saskatoon. Je réitère donc mes remerciement au Dr. Vipen Sawney et son équipe pour le travail efficace et fructeux qu'il ont réalisé lors du congrès de Saskatoon. Lors de l'Assemblée générale annuelle nous avons aussi présenté les différents prix pour les étudiants (voir pages 37 et 38). Je félicite tous les gagnants pour leur excellent travail et leur souhaite bonne continuation.

Lors de la rencontre sociale entre la « Botanical Society of America », la « Sociedad Botanica de Mexico » et l'Association botanique du Canada (5 août), j'ai eu l'immense honneur de présenter la médaille Georges Lawson au Dr. André Fortin et la médaille Mary E. Elliot au Dr. Vipen Sawhney, deux grandes figures de la biologie végétale au Canada et dans le monde. C'est aussi lors de cette rencontre qu'a eu lieu le lancement du très beau livre d' Ernest Small et Paul M. Catling, *Canadian Medicinal Crops*, un ouvrage qui marquera surement l'histoire de l'ethno-botanique au Canada.

En terminant, je vous souhaite rendez-vous au prochain congrès de l'ABC à London qui s'annonce des plus prometteurs.

Denis Barabé, President / président

Faculty Opening

Plant Ecology

University of Toronto at Scarborough

The Division of Life Sciences, University of Toronto at Scarborough, invites applications for a tenure-stream position in plant ecology. Applicants must have a Ph.D. (or equivalent), and preferably one or more years of postdoctoral experience. The successful candidate will complement current research and teaching strengths in the division and will be expected to take an active role in both undergraduate and graduate teaching, and to develop a strong research program.

Interested applicants should submit a complete c.v., a statement of research and teaching interests, three letters of recommendation (including comments on teaching ability and publications), and copies of recent reprints to:

Dr. Ron Dengler
Associate Chair
Biology, Division of Life Sciences
University of Toronto at Scarborough
1265 Military Trail
Scarborough, Ontario
MIC lA4

Closing date for applications is September 30, 1999. The appointment will be at the Assistant Professor level, and salary will be commensurate with qualifications. The position will be effective July 1, 2000, subject to budget approval. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian Citizens and permanent residents of Canada. In accordance with its Employment Equity Policy, the University of Toronto encourages applications from qualified women and men, members of visible minorities, aboriginal peoples, and persons with disabilities.

The Georges Lawson Medal to Dr. André Fortin

The Canadian Botanical Association is presenting the Georges Lawson Medal to recognize a lifetime contribution to a botanist with an exceptional academic career. We reproduce the President's allocution at the 1999 International Botanical Congress held in St. Louis.

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Dear Presidents, dear members of the Botanical Society of America, of the Sociedad Botanica de Mexico and of the Canadian Botanical Association, distinguished participants and guests, it is a real pleasure for me, on behalf of the Canadian botanical Association, to present the Georges Lawson Medal. This award is presented to recognize a lifetime contribution by a botanist working in Canada with an exceptional research and academic career. This year, the Lawson Medal is presented to Dr. André Fortin, professor of the University of Montréal. Dr. André Fortin, born in Québec, did his master in botany at the University of Wisconsin. He obtained a PhD in soil microbiology at Laval University, in Québec. After completing his PhD, Dr. Fortin took up a position of Professor of botany at Laval University in 1966, where he worked for 23 years.

During this period, he founded the Forest biology Research Institute (Centre de recherche en biologie forestière) of Laval University. In 1989, he moved to the University of Montreal where he became the Director-Founder of the Plant biology research Institute (Institut de recherche en biologie végétale) at the University of Montreal in conjunction with the Montreal Botanical Garden. Among other important awards, in 1983, Dr Fortin was elected fellow of the Royal Society of Canada. After a successful career as scientist, educator and administrator, Dr. Fortin decided to retire few months ago, and we will all miss him.

Dr. Fortin has published over 150 papers in less than 35 years, and he has trained over 50 graduate students and post-doc. He is recognized internationally as an outstanding mycologist who contributed significantly to the field of plant symbiosis. For example, in collaboration with his students he was able to clearly show that the association between fungi and tree roots led to a close correlation between the cycle of growth of the tree and the reproductive cycle of the fungi.

Dr. Fortin has also been a very efficient teacher and administrator. He early influenced the most successful researchers working in plant symbiosis in the world. His studies, in collaboration with numerous colleagues and students, have greatly advanced our understanding of the biology of the plant symbiosis.

Dr. Fortin never lost his passion for his particular area of research, a passion which be communicates with great talent. His many colleagues appreciate his creativity, his hard work, as well as his good advice.

As one of his former students wrote, Dr Fortin's lifetime contributions to Canadian botany can be assessed by standard measures: outstanding scholarship and participation in the scientific community on all levels. But even more important is the human side of the contribution he has made to botany and mycology in Canada and beyond.

So my dear friends, I am honoured to present this year's Georges Lawson Medal to Dr. André Fortin.

Denis Barabé, President

André Fortin receiving the George Lawson Medal from the CBA President, Denis Barabé.

Iain Taylor accepting the Mary E. Elliot on behalf of Vipen Sawhney

The Mary E. Elliot Medal to Dr. Vipen Sawhney

The Mary Elliott award was established in 1978. It recognizes meritorious service to the Canadian Botanical Association by an individual member. We reproduce the President's allocution at the 1999 International Botanical Congress held in St. Louis.

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I am very pleased to present the Mary Elliott award of the Canadian Botanical Association to Dr. Vipen Sawhney who is professor at the University of Saskatchewan. For nearly twenty-five years he has been an active member and supporter of CBA by participating in the annual meetings and encouraging his students to follow his example.

In addition to Vipen's career-long dedication to Canadian botany and CBA, there are three specific contributions which deserve particular recognition.

During his term as a Director of the Association, Vipen worked very hard to promote the interests of the CBA by recruiting new members among his colleagues and by actively participating in efforts to increase the profile of the Association and its annual meeting.

In an equally dedicated manner, Vipen served for five years as an Associate Editor of the Canadian Journal of Botany with the firm belief that it was is duty to the Canadian botanical community to take the time and effort to do the job effectively.

Vipen was Chairman of the local committee that organized the Annual Meeting of the CBA in Saskatoon last year. Much of the credit for the success of the meeting justly belongs to Vipen. Thanks to his efforts a substantial profit was realized. As a result the CBA was able to provide 12 travel bursaries for students to attend the International Botanical Congress. In addition, a new student award, named in honour of Sylvia and Tain Taylor will be presented at future annual meetings of the CBA, for the best poster by a student.

Unfortunately, Dr. Sawhney was unable to attend the meeting to receive this award in person. Therefore, I invite Dr. Iain taylor to accept the award for Vipen.

Denis Barabé, President

1999 Award Winners

George Lawson Medal

(for lifetime contribution to botany)
Dr. André Fortin
Institut de recherche en biologie végétale
Université de Montréal
(see text on page 36)

Mary E. Elliot Medal

(for meritorius service to CBA)
Dr. Vipen Sawhney
Department of Biology
University of Saskatchewan
(see text on this page)

Lionel Cinq-Mars Award

(best student poster or oral paper presented at the CBA Meeting)
Marcel Dorken
Department of Botany
University of Toronto
"Gender variation in
Sagittaria latifolia (Alismataceae)"
(Supervisor, Spencer Barrett)

Weresub Award

(best student paper in mycology)
Sarah Hambleton
ECORC, Agriculture and Agri-food Canada
"The genus *Oidiodendron*:
species delimitation and phylogenetic
relationships based on nuclear
ribosomal DNA analysis"
Mycologia 90 : 854-869
(with K. N. Egger and R. S. Currah)

Taylor A. Steeves Award

(best student paper in structure and development)
Connie L. Soros
Department of Botany
University of Toronto
"Quantitative leaf anatomy of
C3 And C4 Cyperaceae and
comparison with the Poaceae"
Int. J. Plant Sci. 159 : 480-491
(with Nancy G. Dengler)

1999 Award Winners (continued)

J. S. Rowe Award

(best student paper in ecology)

Duane Peltzer
Department of Biology
University of Regina
"Competition intensity along an experimental fertility gradient in a low diversity grassland"
Americam Naturalist 151 : 465-476

Honorable mention to
Daniel Kneeshaw
Université du Québec à Montréal
"Canopy gap characteristics and tree replacement in the South-Eastern boreal forest"
Ecology 79 : 783-79

Macoun and Special Travel Awards

(travel bursaries for students presenting a poster or an oral paper in the Lionel Cinq-Mars Competition)

Cindy Ross
Department of Botany
University of Manitoba

Elizabeth Powell
Department of Biology
Wake Forest University
Winston-Salem, NC

Donna Lindsay-Postnikoff
Department of Geological Sciences
University of Saskatchewan

Julian R. Starr
Department of Plant Sciences
University of Oxford

Fannie Gervais
Institut de Recherche en biologie végétale
Université de Montréal

Michelle A. Woodvine
Department of Botany
University of Toronto

Connie Soros
Department of Botany
University of Toronto

Cheryl A. Jerome
Department of Botany
University of Manitoba

Ryan Geil
Department of Botany
University of Guelph

Félix Forest
Institut de recherche en biologie végétale
Université de Montréal

Houman Fei
Department of Biology
University of Saskatchewan

Rodger C. Evans
Department of Botany
University of Toronto

Upcoming Congress

XVI International Congress on Sexual Plant Reproduction

The XVI International Congress on Sexual Plant Reproduction will be held at Banff, Alberta, from April 1-5, 2000. The conference is co-sponsored by the Universities of Saskatchewan and Alberta, and is held under the auspices of International Association of Sexual Plant Reproduction Research.

The scientific program will include all topics on sexual plant reproduction, from flowering to seed development. Sessions will be held in the mornings and evenings with the afternoons available for skiing, field trips, nature walks and discussions with colleagues.

For further details, please check the web site:
http://www.usask.ca/biology/spr/
Co-organizers are:
Dr. D.D. Cass, University of Alberta
d.cass@ualberta.ca
and **Dr. V.K. Sawhney**, University of Saskatchewan.
sawhney@admin.usask.ca "

Poorly Known Economic Plants of Canada - 22. Wild Leek, *Allium tricoccum* Solander var. *tricoccum* and var. *burdickii* Hanes.

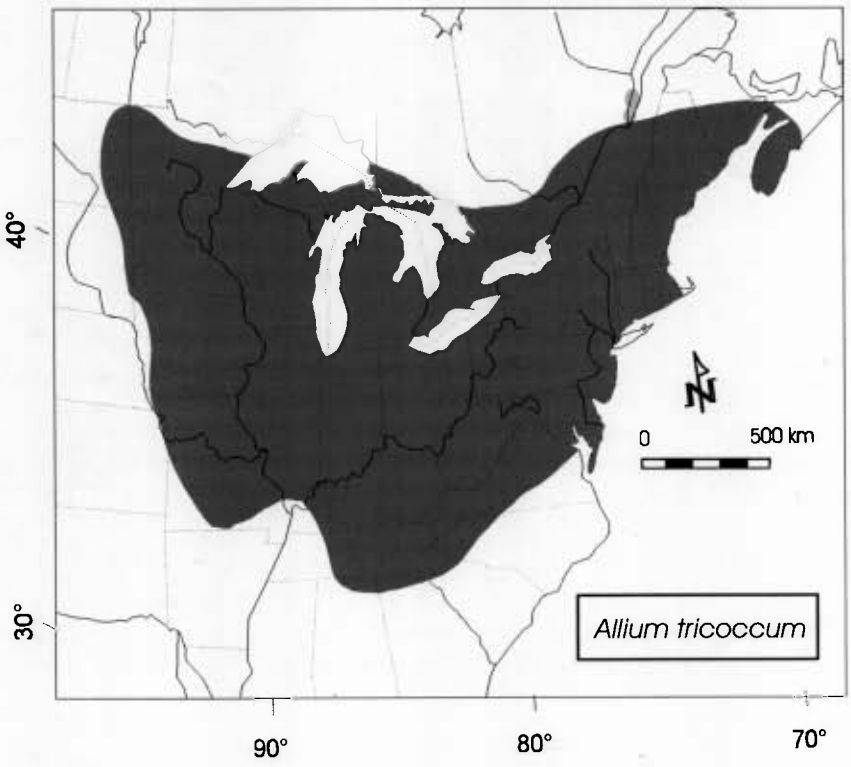
E. Small, J. Cayouette, and P.M. Catling, Eastern Cereal and Oilseed Research Centre, Research Branch, Agriculture and Agri-Food Canada, Saunders Bldg., Central Experimental Farm, Ottawa K1A 0C6.

Common Names: Wild Leek, Ramp (less frequently: Small White Leek, Three-seed Leek). French: ail des bois (less frequently: ail trilobé, ail sauvage, poireau sauvage).

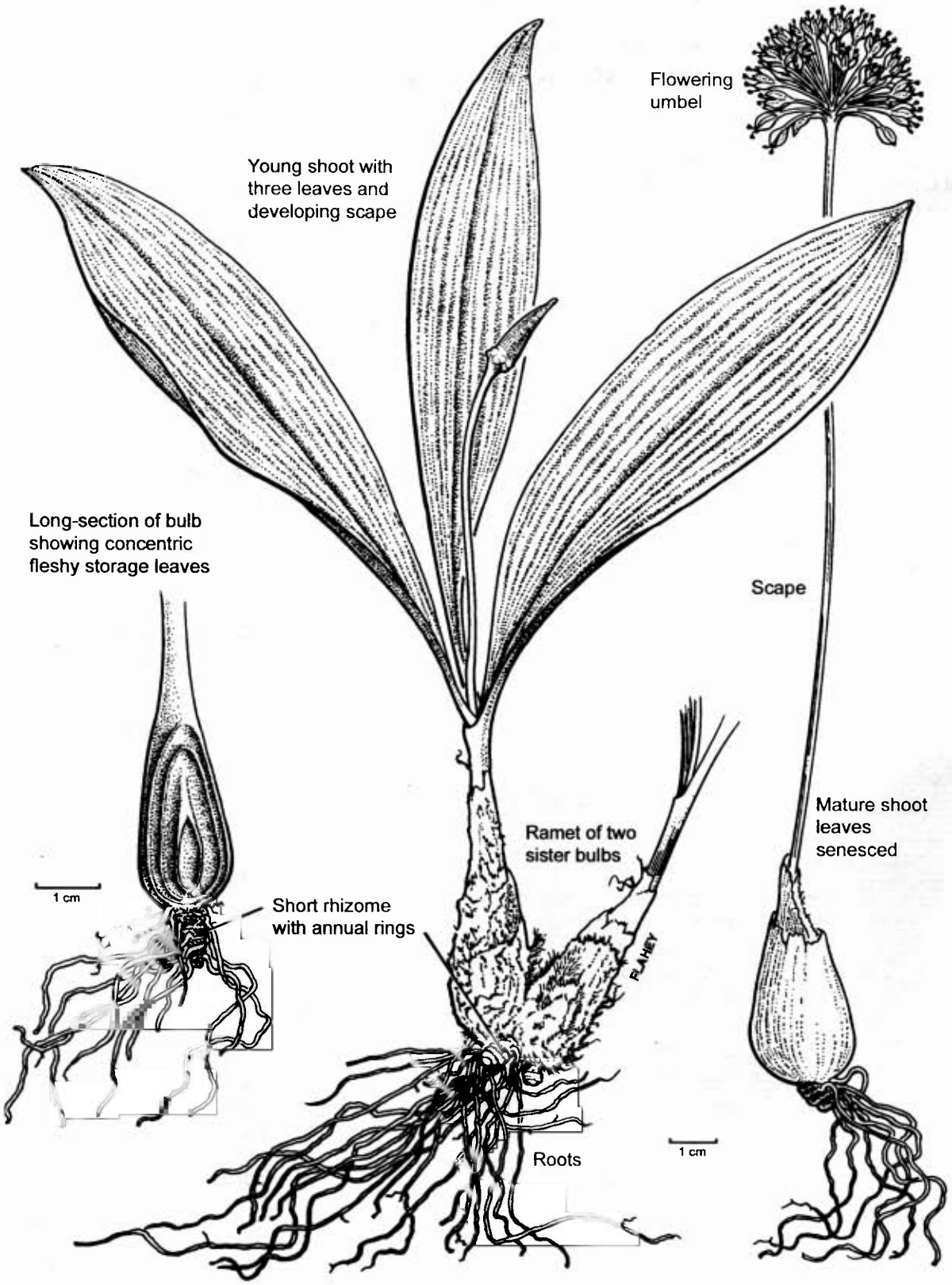
"Ramp" was originally applied to *A. ursinum* L., European Ransom or Bear Leek, a species similar to *A. tricoccum*. The name was taken up by inhabitants of the southern Appalachians. It probably derives from the Old English word for wild garlic, *hramsa*. A more colorful explanation holds that ramp comes from "ramson", meaning son of Ram, an allusion to the arrival of the plant during the appearance of the constellation Aries, the ram, the first sign of the zodiac. Wild Leek is sometimes called Wild Garlic, a name applied to a variety of species, in Canada most often to *A. canadense* L., which is also collected as an edible wild food.

The scientific name for Wild Leek is widely cited as *Allium tricoccum* Aiton; the correct citation is *A. tricoccum* Solander (i.e. *A. tricoccum* Solander in Aiton).

There are two well-defined variants of *A. tricoccum*, alternatively recognized as varieties of this species, or as separate species. In this review we refer to these as var. *tricoccum* and var. *burdickii* Hanes (= *A. burdickii* (Hanes) A.G. Jones). These overlap substantially in range, although var. *tricoccum* is more common and widespread, and appears to constitute the majority of plants in Canada. In Ontario *A. burdickii* is rare and possibly occurs in fewer than 20 locations in extreme southern Ontario and along the St. Lawrence and Ottawa rivers in Quebec. Since it has only recently been recognized, there has been insufficient time to establish its status with certainty. Difference in flowering times are thought to isolate the varieties, although hybridization seems possible. Differences between typical plants of the varieties (largely based on studies in the US) are shown in the table. We have experienced difficulty in separating the two taxa in Canada, and additional taxonomic research appears necessary.



	var. *tricoccum*	var. *burdickii*
Bulb length (cm)	4-6	2-4
Leaf width (cm)	5-8	2-4
Leaf length (cm)	20-30	14-24
Scape height (cm)	25-33	3-16
No. flowers	30-50	10–18
Anthocyanin pigment in sheaths & petioles	common	absent
Flowering period	July, August	early June
Habitat	moist, rich woods	somewhat drier woods


Flowering umbel
Young shoot with three leaves and developing scape
Long-section of bulb showing concentric fleshy storage leaves
Scape
Ramet of two sister bulbs
Mature shoot leaves senesced
1 cm
Short rhizome with annual rings
PLAHEY
Roots
1 cm

Wild Leek is distinctive, but could be confused in the vegetative phase with some other companion species of the Lily family, such as Yellow Adder's Tongue (*Erythronium americanum* Ker.), Corn-Lily (*Clintonia borealis* (Ait.) Raf.), and the poisonous White Hellebore (*Veratrum viride* Ait.). The distinctive onion smell of Wild Leek is a good indicator of the species.

In Canada, Wild Leek occurs in Nova Scotia, New Brunswick, Quebec and Ontario. A disjunct occurrence at Morden, Manitoba (the collection lacking adequate data) may represent a cultivated plant. In the US, Wild Leek is found from the Atlantic Coast west to North Dakota in the north and Tennessee in the south, and south as far as northern Georgia. In the area of the Great Lakes and northeastward, Wild Leek is a northern hardwoods forest herb, occurring on streamside bluffs, in depressions, and in upland maple woods. It prefers rich, moist soil. In more southern areas in the US, Wild Leek grows in colluvial mountain slopes at higher elevations (1000-3000 m).

Wild Leek is a long-lived spring ephemeral of deciduous forests. Such plants take advantage of the limited competition in the early spring (before full tree canopy development) for light, and possibly also nutrients and space. The plants resume growth and emerge shortly after snowmelt (late April in Canada), the shoots sometimes even elongating in the snow. The 1-3 basal fleshy, flat leaves are oblong- lanceolate or elliptical, wider ((1.5)-2-6 (-9) cm) than any of the approximately 90 other wild-growing species of *Allium* found in North America north of Mexico. Five to six weeks into the season, when the developing forest canopy has substantially reduced available light, the leaves wither rapidly and disappear. With leaf senescence a flowering scape (10-40 cm high) grows (in June in Canada), with an umbel of 3-50 or more white or whitish flowers that shed pollen in July. It has been reported that Wild Leek in Canada is self-compatible, although some literature reports that in the US cross-fertilization is necessary. After fertilization a trilobed capsule is produced with 1-3 glossy black seeds (no more than one in each lobe), which ripen in 4-6 weeks, begin to be dispersed by the end of August, and generally remain dormant for a year before germinating in the fall. By autumn (September in Canada) the leaves and scape have been initiated within the bulb so that they can develop rapidly and emerge in the spring. Asexual reproduction occurs by lateral buds developing into new bulbs. The brownish bulbs are slenderly ovoid, 1.5 - 6 cm long, with fibrous roots below. The lateral buds are smaller than the mother bulb, and remain attached for several years by a short rhizome. Thus several attached cloned plants (constituting a ramet) are produced, the mother plant typically larger than the daughters. Annual rings on the rhizome attaching a given bulb to its siblings allow dating of the age of the bulb. Eventually decomposition of the rhizome results in independent ramets. Left undisturbed, vegetative reproduction may result in large, dense patches. Some clones are sterile, reproducing only vegetatively. Some populations can have millions of "plants" (i.e. bulbs), although harvesting pressures are making this less common.

The ripe seeds may remain attached to the scape for a time and, as it is semi-flexible, it may act as a catapult when touched, hurling the seeds a meter. Most seeds fall passively to the ground. Many seeds are collected by mice, and have been found in caches. Birds have also been suggested as playing a role in dispersal. Mast years have been observed, wherein seed production is exceptionally high, followed by much lower output in succeeding years.

The bulbs of Wild Leek were eaten raw or dried for winter use by Iroquois and other Indian tribes in Minnesota and Wisconsin. North American Indians also commonly baked Wild Leek in ashes. Medicinally, Indians used the herb in decoctions to treat coughs and colds, and prepared a poultice from the juice of the bulbs to treat the pain and itching of insect bites and stings. The Chippewa employed boiled wild leek to induce vomiting, the Iroquois ate it as a spring tonic and to rid children of intestinal worms, and the Cherokee consumed it as a mild laxative. There have been several recent pharmacological studies of *A. tricoccum* in connection with its potential use as a medicinal herb, particularly with regard to breast cancer. Many southern Appalachian communities have "ramp festivals" from mid-March to mid-April, and it is widely believed that the plants are a spring tonic. Wild Leek undoubtedly possesses many of the medicinal virtues of its cousin, garlic, but is used today exclusively as a culinary herb. The leaves don't store well, and are employed as a condiment in salads or to give taste to vinegar. The bulbs will keep for months under refrigeration, and are very popular pickled.

The city of Chicago derives its name from the Menomini Indian word shika'ko, meaning "skunk place," a reference to the odor of the Wild Leek that was prevalent at the location. (If that seems derogatory, consider the Cheyenne word for *A canadense* - kha-a'mot-ot-ke-wat, meaning skunk testes.) Wild Leek has a pungent garlic-onion odor that is noxious to some, and has been described as "garlic with an attitude." Nevertheless, it was characterized by Euell Gibbons, in his 1962 classic *Stalking the Wild Asparagus*, as the sweetest and best of the North American onion bulbs, and is considered to be a gastronomic delight by those who have acquired the taste.

The edible bulbs of Wild Leek are widely harvested by wildcrafters and there is some commercial trade. Tons of bulbs harvested from the Appalachians are sold in the US Northeast. In Quebec, millions of newly harvested bulbs were widely available at roadside stands until recently. However, northern populations reproduce slowly (taking an average of 10 years from seed to production of a flower) and depend heavily on clonal reproduction, so that bulb harvest represents a serious threat to survival. In Quebec, it has been estimated that harvesting only 30% annually of the large plants dooms a colony of average size to extinction in 25 years. In 1996 most Quebec populations were already

Poorly Known Economic Plants of Canada

too small to support further harvesting without imminent extinction. Wild Leek is concentrated in heavily populated areas of southern Ontario and Quebec, where habitat destruction has occurred, endangering survival. Further, road building has increased accessibility. Some harvesters have been known to virtually wipe out populations by collecting everything in sight; others doom populations to extinction by harvesting all of the large plants. A fifth of Quebec's known populations have disappeared in recent times. Thanks to two decades of campaigning and research by Quebec botanists such as Andrée Nault and Daniel Gagnon, Wild Leek became the first species to be designated "Threatened" (="Vulnerable" in French) in the province, in recent legislation which forbids any form of trade in the plant, and provides for fines of up to $40,000.00.

However, collection of small quantities in Quebec for personal consumption (no more than 50 plants or bulbs annually) remains possible. Harvesting also occurs in Ontario, but the effects have not been documented and there is no protective legislation. Given the facts documented above, we do not feel that any collection of Wild Leek in Canada is advisable, especially near the northern range limits. For those who insist on collecting Wild Leek in this country, the following recommendations have been made. Collect after the period of spring photosynthesis is completed (not until June), to allow the bulbs to mature. If leaves are individually harvested, take only one from a plant and leave at least one. Don't collect the largest plants, since they are critical to population survival. Don't collect more than one plant in ten. Use a small trowel, and carefully collect only one or two bulbs per ramet. Don't collect if the population has less than 1,000 plants.

The possibility of cultivating Wild Leek has been explored, especially in Quebec since legislation has forbidden commercial exploitation of the wild source. Cultivation has not been authorized in Quebec because of fear that in the marketplace one could not distinguish legally cultivated from illegally collected wild material. Perhaps a permit system for farmers along with heavy fines for commercial harvesting of wild plants is an appropriate solution. Some wild plants have been saved from extinction by providing a cultivated supply. The potential profitability of cultivation is indicated by some estimates of commercial trade in Quebec of the wild plants exceeding $500,000 annually in the early 1980s. Wild Leek is an extremely attractive culinary novelty with such obviously high sales potential and profit margin that it should be developed agriculturally.

Graduate Research Assistantship

Graduate Research Assistantship in Fen Restoration for January 2000

Wetlands studies in which peat moss has been extracted for horticultural use. The successful candidate will either adapt restoration techniques already developed for bogs or develop a new methodology suited for the recovery of poor fen. Existing work is limited to the observation of natural regeneration of fens and current knowledge is not commensurate with the extensive human impact. The work will form part of a 4-year project on the restoration of harvested peatlands in New Brunswick and Québec, and peatland hydrology and vegetation will be the focus of the study. The assistantships will be 12,000 $/year, for a 2-year period at the MSc. level and 15,000 $/year, for a 3-year period at the PhD level (if candidates already have a scholarship, we will offer supplements. These exclude PhD funds offered by the university which approximate 2,500$).

Position available beginning January 2000. Application deadline Dec. 15. Interested candidates may contact Dr Line Rochefort (see address below).

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Le Groupe de recherche en Écologie des tourbières (GRET) est à la recherche de candidats intéressés à mener un projet d'étude sur la restauration de substrats tourbeux possédant les caractéristiques de tourbières minérotrophes (fen). Le GRET a comme principal objet d'étude les tourbières ayant fait l'objet d'extraction de tourbe à des fins horticoles. Un des objectifs visé est d'adapter les méthodes de restauration des tourbières ombrotrophes aux fens ou de développer une nouvelle approche pour les tourbières possédant les caractéristiques de fens pauvres. Il s'agit d'un champ d'étude complètement nouveau. Les travaux existants se limitent au suivi de la régénération naturelle des fenset très peu d'expériences impliquant l'intervention humaine ont été tentées. L'hydrologie et les communautés végétales seront au centre de cette étude.

Les bourses offertes sont d'une valeur de 12,000 $/an, pour 2 années au 2ème cycle et de 15,000 $/an, pour 3 années au 3ème cycle. Le GRET amorce un projet de quatre ans sur la restauration des tourbières exploitées du Nouveau-Brunswick et du Québec. Les travaux de recherche se font en étroite collaboration avec l'Industrie canadienne de la tourbe et des chercheurs des universités de Waterloo et McMaster. Les personnes intéressées peuvent communiquer avec :

Dr. Line Rochefort
Département de phytologie, Université Laval,
Sainte-Foy (Québec), G1K 7P4
tél.: (418) 656-2131, poste 2583, fax: (418) 656-7856
Line.rochefort@plg.ulaval.ca
(http://www.fsaa.ulaval.ca/gret-perg/)

The following publications have not yet been spoken for. If you are willing to review one of these books please contact the editor at the address indicated at the beginning of the bulletin (page 34). On request, the book you wish to review will be sent to you.

Les publications suivantes n'ont pas encore été réclamées. Si vous voulez faire la critique d'un de ces ouvrages, veuillez contacter le rédacteur du bulletin à l'adresse indiquée à la page 34.

Symmetry in Plants
by R.V. Jean and D. Barabé (Editors)
World Scientific, 1998
(Series in Mathematical Biology and Medecine, Vol. 4)

Cultiver des plantes sauvages... sans leur nuire
par G. Lamoureux et P. Nantel
Fleurbec éditeur, 1999

Molecular Genetics of Plant Development
by S.H. Howell
Cambridge University Press, 1998

Canadian Medicinal Crops
by E. Small and P.M. Catling
NRC Reseach Press, 1999

The Nature of Disease in Plants
by Robert P. Scheffer
Cambridge University Press,
Cambridge, 1997
(US $ 64.95)

[This is the English translation of the review published in French in the May issue of the Bulletin, 32(2): 30-31]

The late Robert P. Scheffer has left us with a fascinating and stimulating book called "The Nature of Disease in Plants". It is an overview of the most important plant diseases that have had an impact on mankind. It is presented in an easily accessible and readable manner, including all sorts of information on the history of discovery and development of plant diseases and the role man has played in their spread.

The book is divided into two parts. The first, entitled "Biology and Control of Plant Diseases", talks about subjects of general interest and presents the basic theory for understanding the development of plant diseases Two chapters treat the ways in which pathogens attack plants and, in turn, the defence mechanisms that plants have at their disposal. The following chapter entitled "Ecological Considerations" discusses the origin and evolution of pathogens using *Alternaria* and *Cochliobolus* as examples. The chapter "Disease Controls and their Limitations" gives us an overview of selection by the manipulation of host resistance, the principles of biological and chemical controls, and the problems involved in quarantine and certification.

The second part, "Natural History of some Destructive Diseases", resumes some of these topics in more detail. It can be read without going through the first part. More than 30 diseases are discussed in detail and most are followed by a resumé which highlights the important points. The diseases are grouped into chapters: Native plants/introduced pathogens; Introduced plants/native pathogens; Elimination of ecological barriers; Adaptation of pathogens in monocultures; Diseases caused by the toxins in *Cochliobolus*; Diseases caused by the toxins in *Alternaria*; Diseases agravated by changing agricultural practices; Annual reintroductions. The text concludes with a discussion on abiotic diseases, particularly the deterioration of forests in Europe.

The bibliography includes 700 references to the literature and a glossary defines some of the terms used in the texts. Several diagrams (mostly chemical formulas) graphs and 24 black and white photographs illustrate the texts. It is interesting to see photographs of six pathologists reputed for their contribution to science, although I would like to have known the dates the photos were taken. Two life cycles are presented, that of *Pucciania graminis* and that of *Cronarium ribicola*. Why not have similarly shown a life cycle for the Rusts since these are difficult for novices to remember - and this book is destined in large part to the non-initiated public. Why is *Spermogonium* used in one of the cycles and *Pycnia* in the other? Why the singular in one cycle (*Aecium, Spermogonium*) and plural in the other (*Aecia, Pycnia*) while talking of one organ? Why in one of the cycles, is the host urédial presented at the top of the cycle while it appears at the bottom of the other? I would have preferred that the term spermogonium be used exclusively. There are also too many typographical errors - more than twenty errors in scientific names is a result of negligence in proof reading.

It is inevitable that there be a certain amount of duplication because of the way the book is presented. Some diseases that are explained in the first part are reexplained in detail in the second part. One of the strong points of the book is the militant message that it conveys. Robert Scheffer, who gained an international reputation for his fundamental work on toxins, talks with a passionate voice about the different principles that come into

play in pathogenesis. He shows that man's activities are at the origin of most plant diseases - the practice of monocultures, the creation of genetic uniformity, and different agricultural techniques such as grafting are the cause of the spread of most plant diseases. At the same time he warns of the danger that some diseases that have remained geographically contained up to now may become pandemic. He points out some new avenues of research in molecular phytopathology that may have an impact on research for methods of control. Some of his descriptions read like a mystery novel. The story of *Hevea brasiliensis* and its principal pathogen, *Microcyclus ulei* is a case in point. But I could equally mention the potato, coffee, the chestnut or the grape.

Despite my remark about spelling errors of scientific names, I very much liked the book. The approach is interesting and the reading is stimulating. Not only does the book inform about the fundamental principles of phytopathology and the most devastating plant diseases, it is also a very important source of references. I recommend it highly to anyone with interests in phytopathology, ecology, plant biology, agriculture or forestry.

Peter Neumann, neumannp@ere.umontreal.ca, Département de sciences biologiques, Université de Montréal
Translation, **Stuart Hay**, IRBV, Université de Montréal

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The Shoot Apical Meristem: Its Growth and Development

by R. F. Lyndon
Cambridge University Press
New York, 1998
(US $90.00)

Prior to 1960, studies of the shoot apical meristem (SAM) consisted of interpretations of a limited number of microscopic sections per species but included observations from a wide selection of species. These descriptive reports of static views were often used to infer the processes of meristem activity - at best, a risky project. Not surprisingly, different opinions and controversies developed among the small group of botanists involved. Do the cells of the most distal portion of the meristem (méristeme d'attente) divide rarely, frequently or not at all? Does this distal portion give rise to the flower or do other regions of the SAM also contribute? Fortunately, this period of subjective and argumentative study gave way to a whole new set of questions and technologies that explored the processes of the SAM directly. For the last 40 years, therefore, a small but dedicated group of investigators has explored a variety of questions about the cell cycle kinetics of the populations of cells at the tips of plant stems. It is the summary of these studies of the last 40 years that is reviewed in this book.

The processes that needed direct analysis were the rates and patterns cell production from the apical meristem as leaves, nodes, internodes and axillary buds are initiated as well as the growth of the meristem itself as it matures and is transformed into flowers or inflorescences. It is a tribute to the diligence of a small number of investigators and their students that enough solid information has been assembled so that now is a most appropriate time for the publication of this progress report. Professor Lyndon, who with his students and colleagues, has been a major contributor during this period is a most appropriate author and he has produced a most readable and interesting summary of the status and future directions of research in this area.

The major topics covered in his ten chapters are: apical cells, multicellular meristems, growth rates, cell cycles, subcellular and biochemical structure of the meristem, primordium initiation, positioning of primordia, partitioning of the apex, the transition to flowering and the "new" floral meristem as revealled by molecular genetics. Each topic is dissected in a logical sequence - many beginning with a question - followed by a presentaion of the relevant observations and interpretations. Many ideas and topics are illustrated with graphs, tables, photos and line drawings some of which are from the authorís laboratory, but many tables and graphs include data from other authors.

A view of the future areas of SAM research is also provided. In addition to the prediction that there is much to learn about the localized expession of the individual genes involved in the functioning of the SAM, Dr. Lyndon argues for the integration of these observations into the total bichemical and biophysical development of the meristems. It will take time to identify and analyse when? where? and to what degree? individual genes act and interact in the different parts of the meristem and the developing plant. Already the observations of KNOTTED, LEAFY, TERMINAL FLOWER and the genes that have been implicated in ABC-model of flower development are becoming part of the everyday vocabulary of plant morphology. And there will be much more. But, as Lyndon underlines " ...these are the switches. The tasks ahead are to investigate what activates the switches and to understand what activates the switches and to understand the nature of the machine that is switched on." This is obviously a large challenge and will offer many opertunities for exciting future research. One hopes, as well, that the selection of meristems will be expanded.

I have one small reservation. It is my experience that researchers who come to study the SAM from other backgrounds such as physiology or molecular biochemistry, in their publications, asign it more activity than is warranted. Thus, the impression is sometimes given that the SAM gives rise to leaves and stems rather than giving rise to the cells from which the leaves and internodes are formed. Though there is no confusion in Lyndon's presentation, I think it might have been helpful to have emphasized this distinction by introducing the concept of "inter-

calary" as opposed to "apical" growth into the discussion. Though not as well studied as are the apical processes, intercalary activity, in a wide range of organs, is responsible for the major growth of the plant and many examples have been documented. This is obviously a topic for much future study and, eventually, a future book.

And what is the current status of those questions about the SAM that energized the publications of researchers 40 years ago? Do meristems possess a zone of resting cells? And if it exists, do flowers arise from this zone? These are not Lyndon's specific questions but the answers are available in this excellent book.

Richard Greyson, Vancouver

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Tree Flora of Sabah and Sarawak Volume 2

Edited by E. Soepadmo, K.M. Wong & L.G. Saw

Sabah Forestry Department, Forest Research Institute Malaysia & Sarawak Forestry Department, Malaysia

(US $ 140.00)

(French version follows the English translation)

This is the second volume in a series of eight that will be published over the next 10 years of a new tree flora for Sabah and Sarawak. This flora has for objective both the inventory and the identification trees and is written for the educated non-specialist. The taxonomy, from the family to the varietal level, is covered in alphabetical order and one taxon from each genus is illustrated. The majority of taxa are native trees although some exotic species, including some shrubs and herbaceous species, are included. Each genus or species description includes the latin name, its English meaning, the principal references, synonomy, height, diameter, morphology, the vernacular name used in Sabah or Sarawak, the distribution, the ecology, the economic use, an identification key for subtaxa and sometimes a discusssion of the taxonomy.

According to Ashton, who wrote the introductory chapter on biogeography and ecology in the first volume, the forests of Sabah and Sarawak differ from those of the Malasian Peninsula to which States on the Island of Borneo belong to politically. From sealevel to the tree limit, which is found on Mount Kinabalu near 3300 m altitude, the following major forest types are found: the mangrove forests, the boggy forests, the scrub forests (called Keranga), the mixed forests composed of members of the family Dipterocarpaceae, the Oak forests in the low mountains, and finally the open krumholz in the high mountains.

This second volume covers 23 families, 75 genera, and about 250 arborescent species. Of these, 68 are endemic to the region and 39 are new to science, which underlines the importance and originality in the flora. For readers in Canada, the most familiar families are the Anacardiaceae, the Caprifoliaceae, the Ulmaceae, and the Sapindaceae. Worldwide, the Anacardiaceae family contains 70 genera and nearly 600 species, mostly in the tropics and subtropics. In Sabah and Sarawak, 18 genera and 95 species are found, many of which are cultivated and well known for the edible fruits and nuts. For example - an exotic species of cashew (*Anacardium occidentale*), and 16 native species of the genus *Mangifera* of the best known is the Indian Mango (*M. indica*). Many other genera in this family such as *Rhus*, provoke skin irritations similar to ones we know. The family Caprifoliaceae is represented by *Sambucus* and *Viburnum*, which has 6 species, 3 of which are endemic. One of the latter, *V. hispidulum* can reach 30 m in height. A third family, well known to us, is the Ulmaceae. Of the 15 genera and 200 species known worldwide, 4 genera and 10 species are found in Sabah and Sarawak. The hackberry trees include *Celtis philippensis* and *C. timorensis*. The Sapindaceae family is the most diversified, having 21 genera and 60 species, many of which produce comestible fruits. The best known is the litchi (*Litchi chinensis*), introduced from China.

The book has excellent identification keys, as well as taxonomic, phytogeographical and ecological descriptions. One shortcoming I found are the categories used for the classification of trees according to size and the definition of what constitutes a tree. For instance, *Rhus borneensis*, which reaches only 3 m in height is considered to be a tree.

This second volume, which continues the high quality of the first, has been produced by a team of scientists from the region, with the collaboration of Harvard University, Kew Gardens, the Royal Herbarium of Leiden, and Cambridge University. I would recommend it to any academic or research institution in botany or forestry. Its price tag is very high, however, for foresters, ecologists or botanists interested in the conservation of tropical forests. It can be ordered from the Publication Division, Forest Research Institute of Malaysia, Kepong, 521 09, Kuala Lumpur, Malaysia.

Translation, **Stuart Hay**, IRBV, Université de Montréal

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Il s'agit du 2^{e} volume d'une nouvelle Flore dendrologique qui en contiendra au moins huit, à paraître au cours des dix prochaines années. Cette Flore a deux objectifs : inventaire des arbres et leur identification. Elle est écrite pour des non-

spécialistes instruits, dans un anglais compréhensible et accueillant. Toutes les unités taxonomiques, à partir de la famille jusqu'à la variété, sont présentées par ordre alphabétique et un des taxons de chaque genre est illustré. Ce sont, en très grande majorité, des arbres indigènes et seulement exceptionnellement des essences exotiques, voire quelques arbustes et herbes. La description de chaque genre et de chaque espèce comprend le nom latin et sa signification anglaise, les principales références, les synonymes, la hauteur, le diamètre (rarement donné dans d'autres flores), la morphologie, les noms vernaculaires utilisés au Sabah et au Sarawak, la répartition, l'écologie, l'utilisation, une clef d'identification des unités inférieures et, parfois, une courte discussion taxonomique.

Selon Ashton, qui a rédigé le chapitre de Biogéographie et écologie du 1er volume, comme rapporté dans ma recension de ce volume-là (Grandtner 1998), les forêts du Sabah et du Sarawak diffèrent fondamentalement de celles de Malaisie péninsulaire, faisant partie de la Fédération de Malaysia et à laquelle ces deux États de l'île de Bornéo appartiennent politiquement. D'abord, leur hauteur et leur structure sont très variables. Elles passent des peuplements hauts d'à peine 10 m, denses, homogènes et monostrates aux groupements très hétérogènes dominés par des arbres émergeants, hauts de 70 m, appartenant à la famille des Dipterocarpaceae. Ensuite, il semble que leur composition floristique dépend surtout de la nature du sol. Et les sols sont ici plus pauvres et plus superficiels, sablonneux, acides, parfois podzolisés et souvent recouverts de tourbe. C'est ainsi, qu'entre le niveau de la mer et la limite supérieure des arbres, qui se trouve sur le mont Kinabalu vers 3 300 m d'altitude, se trouvent répartis les grands types forestiers suivants : la mangrove, la forêt tourbeuse, la forêt basse appelée keranga, la forêt mixte de diptérocarpes, la chênaie de basse montagne et, finalement, le krumholz clair de la haute montagne.

Des 23 familles, 75 genres et environ 250 espèces arborescentes décrits dans ce 2e volume, 68 espèces sont endémiques et 39 nouvelles pour la science. Ce dernier fait souligne l'importance et l'originalité de cette Flore. Parmi les familles plus proches pour un lecteur canadien, se trouvent les Anacardiaceae, les Caprifoliaceae, les Ulmaceae et les Sapindaceae. La famille des Anacardiaceae compte, sur la terre, 70 genres et environ 600 espèces bien connues des zones tropicale et subtropicale. Au Sabah et au Sarawak, il en existe 18 genres et 95 espèces. Plusieurs espèces bien connues y sont cultivées pour leurs fruits et noyaux comestibles. Parmi elles, on peut citer une espèce exotique l'anacardier cajou (*Anacardium occidentale*) et 16 espèces indigènes appartenant au genre manguier (*Mangifera*), dont la plus connue est le manguier d'Inde (*M. indica*). Beaucoup d'autres genres de cette famille, par exemple, genre sumac (*Rhus*), y provoquent, comme chez nous, des dermatites de contact, plus ou moins graves. La famille des Caprifoliaceae, présente principalement dans la zone tempérée de l'Eurasie et de l'Amérique du Nord, ainsi que dans les montagnes des pays tropicaux, est représentée au Sabah et au Sawawak par deux genres : sureau (*Sambucus*) et viorne (*Viburnum*). Le plus important des deux est le genre viorne comptant six espèces. Il s'agit, dans la plupart des cas, d'arbres petits à moyens, hauts de 5 à 13 m. L'un d'entre eux, la viorne hispidulée (*V. hispidulum*), peut cependant atteindre 30 m de hauteur, et trois sont endémiques. La troisième famille, qui nous est bien connue, est la famille des Ulmaceae. De ses 15 genres et environs 200 espèces répartis dans les zones tempérée, subtropicale et tropicale du Monde, 4 genres et 10 espèces sont présents au Sabah et au Sarawak. Le plus proche pour nous est le genre micocoulier (*Celtis*) avec deux espèces : le micocoulier des Philippines (*C. philippensis*) qui peut avoir la forme d'un arbuste ou celle d'un grand arbre haut de 40 m et le micocoulier du Timor (*C. timorensis*), aussi un grand arbre de 25 m de hauteur. Toutefois, c'est la famille des Sapindaceae qui est la plus diversifiée avec ses 150 genres et environ 2 000 espèces. La dendroflore du Sabah et de Sarawak en compte 21 genres et 60 espèces. Plusieurs de ces dernières nous procurent des fruits comestibles. La mieux connue est le litchi de Chine (*Litchi chinensis*) présent depuis la Chine jusqu'à la Nouvelle Guinée. Cependant, cette espèce ne semble pas indigène au Sabah et au Sarawak.

Ce 2e volume représente la suite d'une œuvre d'une grande qualité, réalisée par une équipe locale en collaboration avec l'Université Harvard, le Jardin botanique Kew, l'Herbier royal de Leiden et l'Université de Cambridge. L'ouvrage est doté d'excellentes clefs d'identification et de descriptions taxonomiques, phytogéographiques et écologiques de qualité. Les seuls problèmes qui subsistent concernent la classification des arbres en petits, moyens, grands et très grands ou géants, qui ne correspond pas toujours avec les catégories utilisées couramment : 5-10 m, 10,1-20 m, 20,1-60 m, et plus grand que 60 m. Il en est de même de l'application de la définition de l'arbre (plante ligneuse pérenne dotée d'une seule tige dressée d'au moins 5 m de hauteur et de 10 cm de diamètre à 1 m 30 du niveau moyen du sol). Par exemple, à la page 70, on considère comme arbres : le sumac du Bornéo (*Rhus borneensis*) atteignant seulement 3 m de hauteur et le semecarpe anguleux (*Semecarpus angulatus*) qui n'a que 5 cm de diamètre (à 1 m 30 du sol?). Malgré cela, je recommande ce livre à toutes les institutions d'enseignement et de recherche en sciences forestières et botaniques, aux bibliothèques et à tous ceux parmi les forestiers, écologistes, botanistes et défenseurs de la forêt tropicale qui pourront se le procurer, car son prix de 140,00 $ US est, d'après moi, trop élevé. On peut le commander à l'adresse suivante : Publication Division, Forest Research Institute of Malaysia, Kepong, 521 09 Kuala Lumpur, Malaysia.

Miroslav M. Grandtner, Département des sciences du bois et de la forêt, Université Laval, Québec.

The WEB Press / La presse Internet

Following in the footsteps of the chronicle "The Pant Press", this new chronicle, called "The WEB Press", is created in order to share WEB site addresses with CBA members. Please send your WEB site suggestions and your appreciation of these sites to:

Dans la tradition de la chronique « La presse botanique », la présente chronique, « La presse Internet », est créée dans le but de faire connaître aux membres de l'ABC des sites Internet reliés à la botanique. Veuillez faire parvenir vos suggestions de sites, et votre appréciation de ces sites, à :

***Dr Denis Charlebois**, charled@magellan.umontreal.ca*

In this second instalment of "The WEB Press", we present more sites aimed at the wide interests of our members.

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Ecological Monitoring and Assessment Network (EMAN)

(http://www.cciw.ca/eman-temp/)

For a starter, go to the Ecological Monitoring and Assessment Network (EMAN) home page . The EMAN is a national network of monitoring and research sites characterised by long term, multi-disciplinary studies. This bilingual site should prove helpful to those of you with some interest in the ecology of threatened species in Canada.

(http://www.cciw.ca/eman-temp/scientists/botanists/)

For those of you who cannot keep track of their Canadian colleagues' addresses, a visit to the EMAN's " Botanical Specialists and Literature " page should be the solution. Hosted by the Ecological Monitoring and Assessment Network Coordinating Office, Ecosystem Science Directorate, of Environment Canada, this site provides key information on Canadian researchers working in the field of botany. An updated list would be welcomed.

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Marco Bleeker's site
The Botanic Diversity

(http://www.euronet.nl/users/mbleeker/index_e.html)

Finally, we invite you to pay a visit to Marco Bleeker's site, " The Botanic Diversity " . The main links are Rainforest, Urban Flora, Systematics, Software, and Web-links. By clicking on the Rainforest button, you are invited to a tour (slide show with sound) of "The Tropical Rainforest of Suriname". The Systematics link gives you access to a plethora of botany-related pictures that can be helpful in class. This library is well organised with both English and Latin names. Major taxonomic subdivisions are provided. As a bonus you can jump to many more links by a simple click on Web-links button.

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Dans ce second volet de la chronique La Presse Internet, nous vous proposons trois sites d'intérêt général en espérant ainsi rejoindre le plus grand nombre de membres possible.

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Réseau d'évaluation et de surveilance écologiques (RESE)

(http://www.cciw.ca/eman-temp/)

Pour débuter, nous vous recommendons une visite au site du Réseau d'évaluation et de surveilance écologiques (RESE). Le RESE est un réseau national de sites de surveillance et de recherche caractérisés par des études multidisciplinaires à long terme. Ceux d'entre vous qui manifestez de l'intérêt pour l'écologie des espèces menacées au Canada trouverons matière à réflexion sur ce site bilingue.

(http://www.cciw.ca/eman-temp/scientists/botanists/)

Pour ceux d'entre vous qui êtes incapables de retrouver l'adresse de leurs confrères botanistes canadiens, une visite à la page " Répertoire des botanistes actuels et de leurs publications " du RESE .devrait s'avérer fort utile. Ce site a été conçu par le Bureau de coordination du réseau d'évaluation et de surveillance écologique, Direction de la science des écosytèmes, Environnement Canada. Il fournit l'ensemble des informations nécessaires pour rejoindre bon nombre de botanistes canadiens. Une petite mise à jour de cette liste serait certainement appréciée.

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" The Botanic Diversity "

(http://www.euronet.nl/users/mbleeker/index_e.html)

Pour terminer, nous vous proposons une visite au site, " The Botanic Diversity ") tenu par Marco Bleeker. La page principale donne accès à des sous-répertoires (rainforest, UrbanFlora, Systematics, Software, et Web-links). Si une visite (diaporamas avec commentaires sonores) de " La Forêt tropicale humide du Suriname " vous intéresse, un simple clic sur le bouton Rainforest et le tour est joué. Pour ceux qui recherche des illustrations de plantes, le lien Systematics vous donne accès à une multitude de photographies classées sommairement selon les grands groupes taxonomiques. La liste contient les noms anglais et latin des plantes. Enfin, si la curiosité vous pique, vous pourrez naviguer surs l'un des nombreux sites botaniques proposés sous la rubrique Web-links.

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