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Guelph

## ON THE INSIDE
## À L'INTÉRIEUR



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

According to the calendar spring is here. However, there is a blast of Arctic air howling around my building as I write this. It has been a very strange winter in my part of the country, with very warm mid-winter weather that completely melted the snow cover, then a period of very cold days, and one of the earliest spring melts that I can remember since I came to Guelph. It remains to be seen what effect these ups and downs will have on the local flora.

This issue of the Bulletin largely contains material contributed by members, and I thank all of them for making it easy to put this issue together. The first few pages contains a report on an opinion survey conducted by the Systematics and Phytogeography Section. There is also another in our continuing series on economic plants, this time dealing with the hop. The rest of the issue is filled out with our usual complement of items from the Plant Press, meeting announcements, book reviews, etc. On page 23 I have included a couple of announcements which I encountered in biological newsgroups on the internet. I am slowly becoming more familiar with the ins and

outs of "surfing" the internet so I am feeling less and less like a "middle-aged fogey" when it comes to the use of computer technology via modem. If any of you see similar items which might be of interest to CBA/ABC members, I will try to find space for them in future issues. Any and all submissions are welcome.

### Guelph 1995

My spies tell me that registrations for the Guelph Annual Meeting with CSPP/SCPV are arriving as the deadline approaches. I don't have any final figures but it looks as if we will have a well-attended meeting. I hope to meet many of you here in June.

### Nominations

During the recent winter conference call of the CBA/ABC Executive it was noted that (as usual) there were few nominations put forward for election to the next Boards of Directors. Christian Lacroix has agreed to serve another term as Treasurer but we need nominations or volunteers to serve as Directors. Anyone with names or ideas should contact the Past President, Usher Posluszny, a.s.a.p.

### Our Members Write ...

I sometimes receive letters with information that doesn't really fit into the Plant Press area (which I try to limit to newspaper and magazine items), but which are still interesting enough to pass along to you. Phil Burton sent me the following excerpt from a study report published last year [*Chicago's Urban Forest Ecosystem. USDA Forest Service, Gen. Tech. Rep. NE-186, Delaware, Ohio*]. It clearly demonstrates the importance of trees in the urban environment.

"Results of the 3-year Chicago Urban Forest Climate Project indicate that there are an estimated 50.8 million trees in the Chicago area of Cook and DuPage Counties; 66% of these trees rated in good or excellent condition. During 1991, trees in the Chicago area removed an estimated 6,145 tons [5,570 tonnes] of air pollutants, providing air cleansing valued at US$9.2 million. These trees also sequester approximately 155,000 tons [140,600 tonnes] of carbon per year, and provide residential heating and cooling energy savings that, in turn, reduce carbon emissions from power plants by about 12,600 tons [11,430 tonnes] annually. Shade, lower summer air temperatures, and a reduction in windspeed associated with increasing tree cover by 10% can lower total heating and cooling energy use by 5-10% annually (US$50-90 per dwelling unit). The projected net present value of investment in planting and care of 95,000 trees in Chicago is US$38 million (US$402 per planted tree), indicating that the long term benefits of trees are more than twice their costs."

### Interesting old stuff

Finally, I must also mention a communication I received recently from Sethu Raju, who thought that you might be interested in a bit of information he uncovered while going through some old notes. It concerns the massive cutting of trees to produce the newsprint needed to produce newspapers. I remember seeing these figures when they first came out many years ago, but I think they bear repeating for the information of younger members.

On December 3, 1961, the New York Times printed a special issue which had a total of 678 pages (each of the 1,458,558 copies weighed 6 lb., 3 1/2 oz.). An estimated 4,550 tons of newsprint was required for this issue and, since recycled paper was not a large industry at that time, all of this would have come from wood pulp. It was calculated that about 77,000 mature trees with an average age of 70 years would have been cut down to produce this amount of wood pulp. If they were all gathered together, these felled trees would have been equivalent to a clear-cut area of 360 acres. All of this, as Dr. Raju remarked, was for a single issue of a newspaper that in one day was printed, distributed, read, and then thrown away. Have things changed today? I don't know, but I would be interested to know if anyone has done a similar calculation dealing with more recent newspaper printing.

*Joe Gerrath, Editor*


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## AN OPINION SURVEY OF PRIORITIES FOR PLANT SYSTEMATICS AND PHYTOGEOGRAPHY IN CANADA

*E. Small, J. Cayouette, P.M. Catling, and B. Brookes*
*Centre for Land and Biological Resources Research*
*Research Branch, Agriculture and Agri-Food Canada*
*Central Experimental Farm, Ottawa, Ont., K1A OC6*

In 1964, when R.A. Ludwig travelled across Canada drumming up support for the development of a national botanical organization (later the CBA/ABC), it was a need for leadership, organization, and communication that were the principal concerns. Systematists and phytogeographers felt this need very keenly, and provided a strong nucleus of support for the development of the association. Over the years the Systematics and Phytogeography section has been a strong group within CBA, but the principal needs perceived by this subdiscipline have changed substantially.

For a relatively long period, it appears that there was not a strong feeling of need. In the mid 1980's, Fortin and Barabé (1984) and Morisset and Pelletier (1986) carried out analyses of the status of botanical sciences in Quebec, and the latter compared the situation in Ontario. While these authors expressed concern over the level of support for botany in general, they did not point out any special problems for systematic botany. In 1992, Jim Phipps published the results of a 1990 survey of the characteristics of the plant systematics community in Canada, but his valuable synthesis was not designed to elucidate needs and establish national priorities. It appears that there was not a strong feeling of need at that time. Indeed, Jim was "somewhat dismayed by the number of respondents who found the *status quo* acceptable" (pers. comm.). The *status quo* is no longer acceptable.

The demand for systematics has been steadily growing (*e.g.* Hawksworth and Bisby, 1988, Krebs *et al.* 1992), and systematists and phytogeographers are currently deluged with demands for services related to environmental sustainability, biodiversity, and biological conservation. The increasing requests associated with these current issues, especially for information at the whole organism level, have come at a time of budget reductions. Another important development is that systematic research is experiencing a beneficial expansion through the acquisition of advanced molecular techniques, which are rather costly, and constrain funding for other activities. As a result of decreased funds, higher costs, and new research directions, the capability to respond to many of the important biodiversity-related questions of the day has been reduced. Little wonder there is increasing doubt that Canada can adequately protect its own biodiversity. The prevailing sentiment of the Canadian systematics community today is that systematics personnel and resources are inadequate to effectively deal with national needs.

There is a growing unease that unless things change we won't be able to fulfil our role in promoting a sustainable environment. Various organizations representing different biological disciplines have made statements or passed resolutions bearing on this dilemma, but generally without consideration of priorities. More importantly, the discussions have frequently not focused on the fact that the economic situation requires a practical and business-like approach. Environmental, biodiversity, sustainability and conservation issues in Canada demand extensive expertise from the fields of systematics, phytogeography and ecology. The general sense of urgency provides a special opportunity to seek the necessary support. Both from the point of view of those interested in the services of plant systematists and phytogeographers, as well as those who are professionals in these fields, it is desirable to establish relative financial priorities.

Towards the goal of establishing priorities, we developed and circulated a questionnaire (Table 1) during the summer of 1994. The mailing list for this survey was chosen from the list in compilation for *Canadian Biodiversity: a Guide to Botanical Specialists and Their Literature* [see CBA/ABC Bull. 27: 29 (1994)]. The list at the time of the survey was composed mainly of systematists, phytogeographers, and ecologists, almost all of whose primary professional concern is botanical. The questionnaire was circulated in English (Table 1) or French, as appropriate. Of the 230 requests, 95 responses were received (a return rate of 41.3%). Ten of the responses did not allocate dollar figures to the 23 priorities as requested. Means based on the remaining 85 compilable responses are shown in Table 1. Relative allocations to the categories by which the questionnaire was organized are shown in Fig. 1.

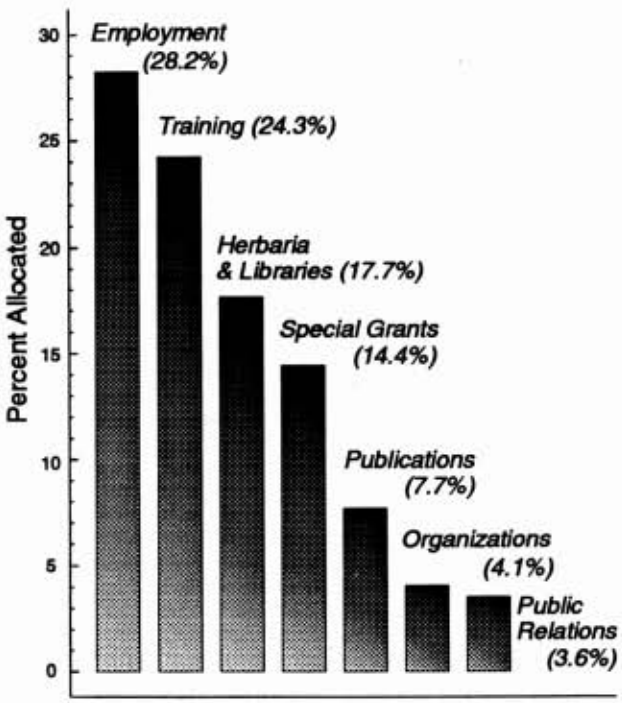


**Figure 1. Relative allocations of categories.**

Of the 23 options provided on the questionnaire, the most attractive proved to be No. 5, "Establish a fund that would pay half the salary of any new professional systematist [or phytogeographer] hired by any institution provided that previous staff levels are maintained." This was given more than 25% of the supplementary funding that respondents were asked to allocate. It would seem obvious that there is great concern in the scientific community over the continuing trend of decreasing employment of systematists and phytogeographers in Canada, and that the first priority should be to reverse this decline. This is clearly based on national needs rather than on personal job security, since less than 5% of the respondents were unemployed or threatened with job loss.

The first four questions concerned training, and collectively attracted a total of 24.3% of the supplementary funding to be allocated, mostly for university training. Of the various categories of training, that at the graduate level was considered most important (Fig. 2). It is of course indisputable that a pool of young systematists and phytogeographers needs to be developed to meet the future needs of Canada.

Herbaria were allocated 13.3% (questions 7 and 8), which in the context of the survey is a very respectable amount. This seems to reflect the general recognition that research collections of plants are indispensable for training, and as an information base, particularly for agriculture, resource management and biotechnology. Phipps' 1992 survey found herbaria and libraries to be the most important subdisciplines for training new systematists in Canada. Various other surveys, reports and workshops have also established the importance of herbarium collections in Canada (*e.g.* Catling & Dang, 1992) and globally (*e.g.* Krebs *et al.*, 1992; Systematics Agenda 2000, 1994).

Of the four "Special grants" questions (10-13), concerned with what might be termed Operations & Maintenance aspects of research, supplementary funding for field travel received the largest allocation (Fig. 3). Several respondents commented that field travel was particularly in need of additional funding. The concern for underfunding of field travel is a recognition that field study is indispensable to answer questions involving taxonomy, ecology, and biogeography, especially in an age concerned with the environment and biodiversity.

Supplementary allocations to publications (questions 14-18) attracted 7.7% of the funding. We note in regard to question 15 that there has been progress in arranging the creation of a Canadian monograph journal by NRC; and that *Écoscience*, a new bilingual periodical to which phytogeographers are welcome to contribute, was initiated recently in Quebec. It should also be pointed out that there are plans to set up a National Biological Inventory Database System on-line on Internet at the National Atlas of Canada. Several respondents commented that new journals are not a priority; others wrote that greater use of the Internet for data storage and retrieval is very important, and this may lessen the need for recording information in journals.

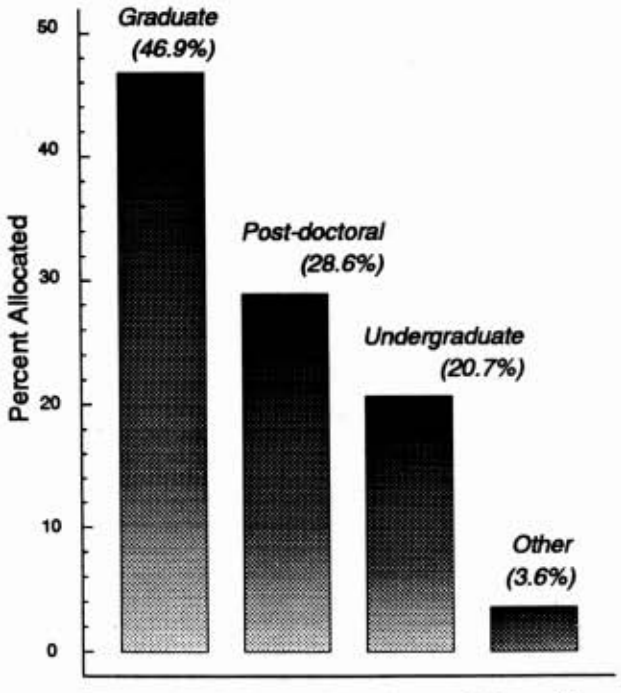


Figure. 2. Relative allocations within training category.

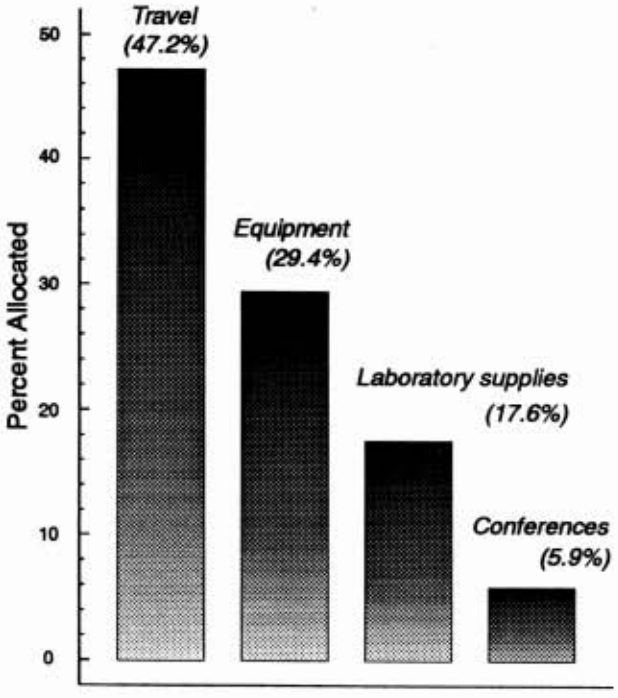


Figure. 3. Relative allocations within special grant category.

**Table 1. Survey form and means of how a million dollars were allocated**

PLEASE RECORD BELOW HOW YOU WOULD ALLOCATE $1,000,000.00 TO **SUPPLEMENT** PRESENT LEVELS OF SUPPORT OF PLANT SYSTEMATICS AND PLANT GEOGRAPHY WITH RESPECT TO THE FOLLOWING. IF YOU BELIEVE THAT CERTAIN AREAS NEED TO BE GIVEN SPECIAL SUPPORT AT THIS TIME, YOU SHOULD ALLOCATE HEAVILY OR EXCLUSIVELY TO THEM, EVEN IF THIS MEANS THAT ALL OF THE MONEY GOES ONLY TO THESE FEW AREAS.

| | |
|---|---|
| **A. TRAINING** | |
| 1. Undergraduate university training | $ 50,118 |
| 2. Graduate-level university training | $ 113,588 |
| 3. Post-doctorate training | $ 70,059 |
| 4. Other aspects of training (specify) | $ 8,824 |
| **B. INCREASING THE NUMBER OF PROFESSIONAL POSITIONS** | |
| 5. Establish a fund that would pay half the salary of any new professional systematist hired by any institution provided that previous staff levels are maintained | $ 251,176 |
| 6. Other strategies of increasing employment (specify) | $ 31,294 |
| **C. COLLECTIONS** | |
| 7. Herbarium development | $ 106,706 |
| 8. Other aspects of collections (specify) | $ 25,941 |
| **D. LIBRARIES** | |
| 9. Provide fund for purchase of systematic books and reference tools in Canadian libraries | $ 44,176 |
| **E. SPECIAL RESEARCH GRANTS** | |
| 10. Equipment, Physical facilities (in addition to above) | $ 42,412 |
| 11. Laboratory supplies | $ 25,412 |
| 12. Field travel | $ 68,176 |
| 13. Conference attendance | $ 8,471 |
| **F. PUBLICATIONS** | |
| 14. Establish a new refereed interdisciplinary journal: Canadian Journal of Biosystematics & Biodiversity | $ 20,059 |
| 15. Establish a new refereed interdisciplinary journal: Canadian Biosystematic Monographs | $ 5,294 |
| 16. Subsidize publication costs of books and print journals | $ 22,765 |
| 17. Establish a refereed Electronic/Internet Canadian Journal of Plant Biosystematics, Phytogeography, and Biodiversity | $ 18,235 |
| 18. Other aspects of publication (specify) | $ 10,706 |
| **G. PROFESSIONAL ORGANIZATIONS** | |
| 19. Support systematic/phytogeographic initiatives of the Canadian Botanical Association | $ 22,588 |
| 20. Support a new Canadian Biosystematics Network | $ 5,353 |
| 21. Other aspects of professional organizations (specify) | $ 12,941 |
| **H. PUBLIC RELATIONS** | |
| 22. Hire a consulting firm or lobbyist to promote interests of plant systematics and phytogeography | $ 27,765 |
| 23. Other aspects of public relations (specify) | $ 7,941 |
| **TOTAL** | **$1,000,000** |

Allocated supplementary support for professional organizations (questions 19-21) totalled only 4.1%. A new Canadian biosystematics network (question 20) also attracted relatively little funding. It appears that respondents considered the current professional organizations to be adequate, or doubted the efficiency of organizations suggested, or both. The most recent discussions and conclusions relating to the need for national network of systematists may be found in Marriage (1992).

Public relations initiatives (questions 22 and 23) also attracted little extra funding (3.6%). There are evidently several reasons for the lack of interest in public relations. One is the difficulties experienced under the umbrella of the Canadian Federation of Biological Societies (Taylor, 1992), particularly the high price of advertising. Another is the fact that considerable comprehensive and well presented promotional information has already become available, such as the Systematics Agenda 2000 document (Systematics Agenda 2000, 1994) and the U.K. initiative (Krebs *et al.*, 1992). Still another reason may be the excessive idealism of some recent promotional literature, for example advocating the creation of an army of taxonomists to collect and classify all organisms, instead of emphasizing the need to establish priorities commensurate with funding opportunity.

Opinion surveys in the U.K. have produced similar results. Respondents to the survey of the House of Lords (1991) held that systematic biology was very important and very underfunded, and a more recent British survey (Claridge & Ingrouille, 1992) indicated that it is also undertaught. Proposed solutions in the U.K. (Krebs *et al.*, 1992) have included a 5 year research program which allocates funds under certain headings. The relative allocations agree well with the results of our survey. For example, the need for training, collections, and information databases were all strongly supported.

To summarize, our Canadian survey highlights the need to increase professional positions, training, and funding for field research and collections, and it suggests these as special priorities for Canada. If the present unsatisfactory situation is to improve, policy-makers need to be persuaded that these requirements are essential for Canada. This may necessitate more attention to the "public relations" category than most respondents to our questionnaire were willing to allocate.

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## POSITION AVAILABLE

### UNIVERSITY OF GUELPH
### DEPARTMENT OF BOTANY

The University of Guelph invites applications for a full-time tenure-track position at the Assistant Professor level in Mycology. Although situated in the Department of Botany, this position is key to the support of a number of research and teaching programs at the University. The University of Guelph has over 60 faculty members in various subdisciplines of Plant Biology with an annual research budget in excess of 9 million dollars and with a current enrolment of over 230 graduate students. The Department of Botany has 12 Faculty members, 3 Associated Graduate Faculty members, 4 Postdoctoral fellows/research associates and 27 graduate students.

The successful candidate would be expected to teach introductory and senior courses in Mycology in the Plant Biology Program and to develop a strong research program in Mycology. The department and Plant Biology Council both emphasize excellence in teaching and research, and applicants must demonstrate strength in these areas. The University of Guelph is committed to an employment equity program that includes special measures to achieve diversity among its faculty and staff. We, therefore, particularly encourage applications from qualified aboriginal Canadians, persons with disabilities, members of visible minorities and women. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. The appointment is subject to final budgetary approval.

Applications, including a recent *curriculum vitae* and three letters of reference, should be sent by May 15, 1995 to:

**Dr. R.L. Peterson, Professor and Chair**
**Department of Botany**
**University of Guelph**
**Guelph, ON N1G 2W1**

### Enfin - un roman basé sur un moment d'histoire de la botanique du Canada

Les membres de l'ABC trouveront le récent roman historique de Robert Gagnon [**La Thèse, 1994. Éditions Quinze, Montréal. 234 pp. $17.95**] très intéressant puisqu'il est basé sur des évènements botaniques se passant au Québec dans les années 30 et 40. L'action du roman relie 3 principaux évènements historiques: la défense de la thèse doctorale en 1934 de Jacques Rousseau (appelé Jacques Dumouchel dans le roman) à l'Université de Montréal, la mort en 1938 du Directeur de l'École Polytechnique de Montréal, et la mort en 1944 du Frère Marie-Victorin, à la suite d'un accident de la circulation. Le roman dépeint les nombreuses nuances de la vie scientifique, politique et sociale au Québec pendant cette période et tisse un complot crédible qui comprend éléments d'action et intrigue, ainsi qu'un travail de détection historique.

Le passage décrivant la dernière excursion botanique de Marie-Victorin est tout à fait réaliste; on ressent pleinement l'anticipation, l'excitation et la camaraderie, alors que des tâches aussi simples que la presse des échantillons après le frisson éprouvé lors de la collecte de plantes rares ne sont pas ignorées. Le roman vaut d'être lu, et rend certainement la botanique, et la science en général, plus intéressantes, et pour le professionel et pour l'amateur. Pour votre intérêt, Jacques Rousseau fut le premier bénéficiaire de la Médaille George Lawson, prix donné par l'Association Canadienne de Botanique.

*Guy R. Brassard, Service canadien des forêts*
*[Traduit par Frédérique Guinel]*

### At Last - A Historical Novel based on Canadian Botany

CBA members who can read French will find a recent historical novel [**Gagnon, Robert. 1994. La Thèse. Éditions Quinze, Montréal. 234 pp. $17.95**] of considerable interest since it is based on botanical events in Québec from the mid-1930s to the mid-1940s. The action of the novel links three main historical events: the 1934 Ph.D. thesis defense of Jacques Rousseau (called Jacques Dumouchel in the novel) at l'Université de Montréal, the death in 1938 of the Director of Montréal's École Polytechnique, and the 1944 death, following a traffic accident, of Brother Marie-Victorin. The novel picks up many of the nuances of scientific, political and social life in Québec during that period and weaves, on the whole, a believable plot that contains elements of action and intrigue, as well as historical detective work.

The part dealing with Marie-Victorin's last botanical excursion is quite realistic; one can feel the anticipation, exhilaration and camaraderie, while even mundane tasks such as the pressing of specimens after the thrill of collecting rare plants are not ignored. The novel is well worth reading, and certainly makes botany, and science in general, more intereresting, both for the professional and for the amateur. Jacques Rousseau, by the way, became the first recipient of the Canadian Botanical Association's George Lawson Medal.

*Guy R. Brassard, Canadian Forest Service*

## FROM THE INTERNET

*The following items were posted to biological discussion groups and may be of interest to CBA members. - Editor.*

### Endangered Ecosystems of the United States

The National Biological Service's Information Transfer Center announces the availability of: **Noss, R., Scott M., and E.T. LaRoe. 1995. Endangered ecosystems of the United States: A preliminary assessment of loss and degradation. Biological Report 28. February 1995. National Biological Service. 58 pp.** This is the first in a series of NBS reports to be released electronically prior to publication in hardcopy. The document is in WordPerfect 5.1 format and is available with and without photographs, as follows:

(1) **To receive this document without photographs** (400KB zipped to 150KB) from the Information Transfer Center's cc:Mail library server, send an email message to: NBSITCLIB@mail.fws.gov (for users of Internet email). Type SEND ECOSYSTEM MS as the only entry on the subject line. Do not type information on the message line. You may need to decode the file with UUDECODE.

(2) **To retrieve a copy of this document with photographs** (2.7MB) from an ftp server, access the following ftp site: ftp.its.nbs.gov (165.83.32.5). Log in as ftp or anonymous and go to /pub/nbs-series. Make sure your ftp client is set to binary mode. The file is called ecosystem.manuscript.

**Printed copies of the document** will be available after mid-April 1995. To obtain a copy, contact: USFWS Publications Unit, 4401 North Fairfax Drive, Mail Stop Code 130, WEBB Building, Arlington, Virginia 22203.

*Date: 7 Mar 1995; Newsgroup: sci.bio.conservation*

### HISTORY OF SCIENCE & TECHNOLOGY IN CANADA

### A multimedia cd-rom for schools and museums

This educational software project in Canadian history is being undertaken in 1995 by the Juniper Group (Ottawa) and graduates at the Institute for the History & Philosophy of Science & Technology, Victoria College, University of Toronto. The team has set up an advisory committee, established contacts at Provincial Departments of Education, associations and museums, and has discussed support with potential sponsors. Approximately 5000 cd-roms would be produced and distributed, as shareware, or offered on networks, to high schools, museums and science/computer stores. Initially designed for MS Windows, the program displays 500+ records, text and pictures covering the subject. Users open various windows and can search by subject, theme, map, timeline or keyword and branch to cross-referenced information, and can create and edit their own contents.

For more information, contact either: Peter Dawson Geldart, Project Manager, or Graeme Bailey, Senior Programmer [E-mail: bb012@freenet.carleton.ca] or Marianne Fedunkiw, Research Coordinator [fedunkiw@epas.utoronto.ca].

*Date: 6 Mar 1995; Newsgroup: sci.bio*

## Poorly Known Economic Plants of Canada - 5. Hop, *Humulus lupulus* L.

*E. Small and P.M. Catling, Biological Resources Division, CLBRR, Agriculture and Agri-food Canada, Saunders Bldg., Central Experimental Farm, Ottawa K1A OC6*

**Common names**: hop, common hop, English hop, European hop ("hop" refers to a hop plant; "hops" refers to the hops of commerce, i.e. the female cones). French: houblon.

***Humulus*** has three species, indigenous in north-temperate areas. Only the perennial ***H. lupulus*** is native to North America. It frequently occurs in moist thickets, slopes, river banks, alluvial woods, or along fences and hedges, often in sandy soils. The Asian annual ***H. japonicus*** Sieb. & Zucc. is a naturalized weed of eastern North America, including southern Ontario and southwestern Quebec.

There are five varieties of ***H. lupulus***: var. ***lupulus*** of Eurasia; var. ***cordifolius*** (Miquel) Maximowicz of Japan; var. ***neomexicanus*** Nelson & Cockerell, the predominant wild hop in the western Cordillera of North America, found from Mexico to British Columbia; var. ***pubescens*** E. Small, of the midwestern U.S.; and var. ***lupuloides*** E. Small, of eastern North America, which includes most wild hops from the Prairie Provinces to the maritime provinces. The distribution of the two indigenous Canadian varieties is shown on the map. In much of Canada and the U.S. the European var. ***lupulus***, is found as an escaped plant from past use in brewing, or as a persisting ornamental around abandoned homesteads.

Hop is a high-climbing, wind-pollinated, perennial vine, sometimes extending more than 10 m. The vines climb by twining, and are assisted in holding onto surfaces by two-hooked hairs that resemble miniature grappling hooks. Charles Darwin entertained himself while sick in bed in 1882 by studying a hop plant growing on his window-sill. He noted that the tip of the stem completed a revolution in 2 hours. The annual, above-ground stem is killed by frost each year, re-growth occurring each season from perennial underground rhizomes and from buds on the rootstock (crown). The rootstocks can live for half a century. The perennial crown becomes woody with age, with heavy, rough, dark brown bark. The hop plant is propagated primarily vegetatively rather than by seeds. More than one hundred cultivars have been named, each essentially a clone. Many of these are of hybrid origin, and have been reproduced asexually for centuries.

Some plants have male flowers, others have female flowers; occasionally plants bear both kinds. In most natural populations of hop, female plants are about twice as numerous as males. Because the female plants produce the commercially valuable hops (the cones or fruit-clusters), and also are of greater ornamental value than the males, the latter are generally discarded as soon as they can be recognized. However, a few males are usually planted deliberately in


England because they increase yield and it is not economical to grow most English cultivars seedless. Male flowers are not organized into "cones," but are in loose inflorescences (panicles). In most hop plantations, males are regarded as a nuisance, since their pollen fertilizes the females, and prevents the formation of the valuable "seedless hops" that are predominantly preferred in commerce. A resin with the valuable brewing constituents is produced in yellow glands on the bracteoles of the cone, as well as on the seeds.

Hop has been used through recorded history for culinary, medicinal, and household purposes, although it is chiefly known as a brewing ingredient. The cultivation of hop was not introduced into England until the close of the 15th century. The hop was brought to North America and grown in the early 17th century. The first commercial brewery in Canada was founded in Quebec about 1668 by the Intendant

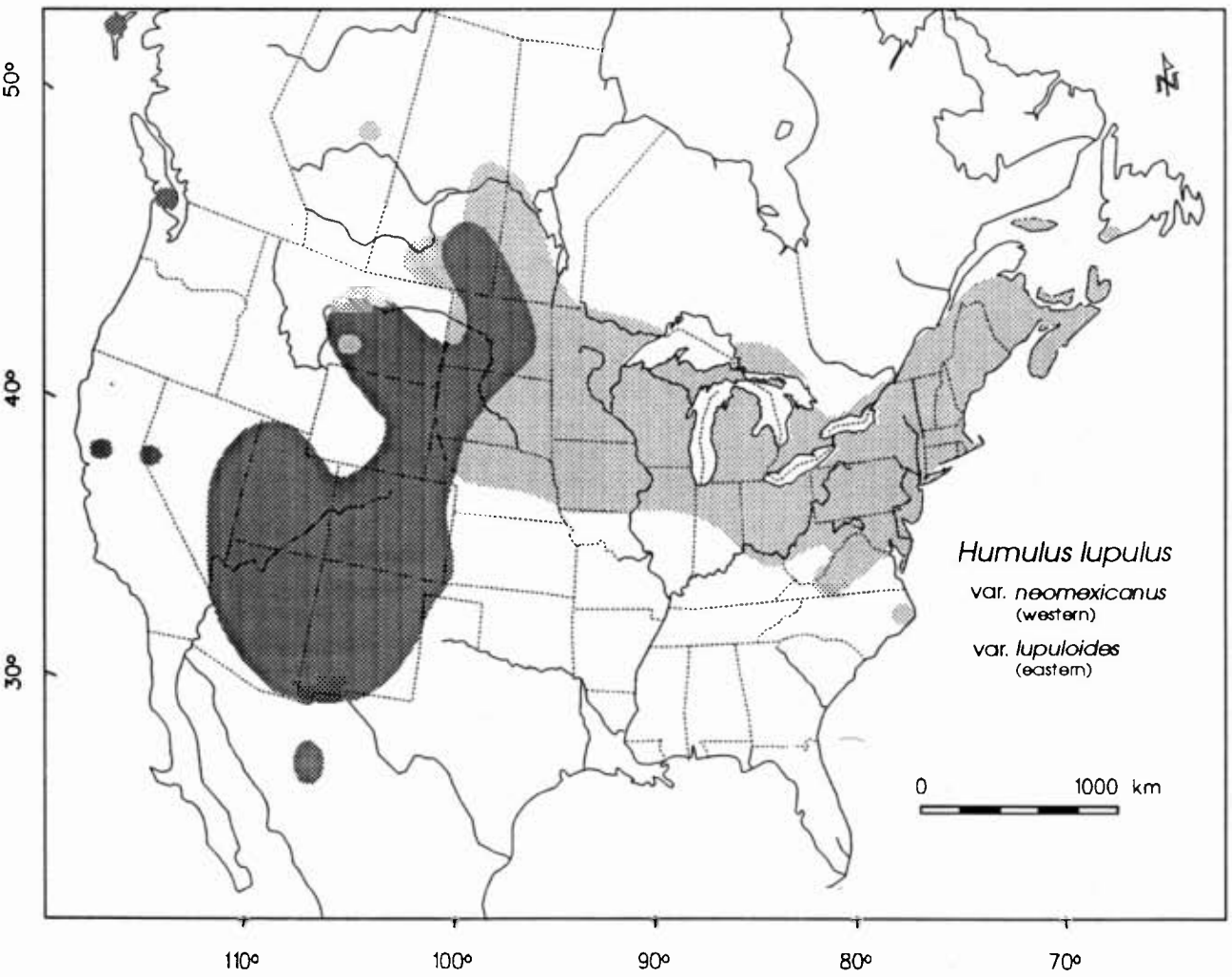
Jean Talon, to control the intemperate use of stronger drink. By the middle of the 19th century, New England and New York produced the bulk of the hops of the New World. However, by the early 20th century, the Pacific Coast became the leading hop-producing area in North America. In the 1920's hop growing in New York was practically wiped out by downy mildew and by Prohibition. Similarly, in eastern Canada commercial hop growing was phased out by the end of the Second World War, but became established in British Columbia.

About two dozen countries, including Canada, raise substantial commercial crops of hops. Germany is the largest producer, followed by the U.S. Other centers of hop production include Russia, China, England, the former Czechoslovakia, and the former Yugoslavia. About 114,000 t are produced worldwide annually, on more than 90,000 ha.

The wild European variety, var. ***lupulus***, is the ancestor of most brewing cultivars used today. However, both in Japan and in North America, the local wild hops hybridized with the imported European hop, to produce unique cultivars. Brewers have long recognized that North American cultivars have a higher content of the important brewing constituents, the alpha acids, and produce beer of stronger aroma. Bitter hops are very important commercially, and nearly all owe a great deal to American germplasm. Hop is a good example of a crop that has been substantially improved recently through incorporation of wild germplasm. A wild hop from Manitoba contributed to the improvement of many standard brewing varieties. Indeed, the improved cultivars account for an ever-increasing proportion of production. The contribution of wild hop germplasm was recently valued at almost $90,000,000 annually in North America.

Hop extracts and oil have been used to flavor tobacco, yeast, beverages other than beers, frozen dairy desserts, candy, gelatins, puddings, baked goods, various confections, chewing gums, and condiments. In the past, yeast for bread-making was prepared by culturing wild yeast in a decoction of hops and water. The hops added flavor and apparently prevented the yeast from spoiling by virtue of their antiseptic properties.

The high oil and resin content of hops contributed to a reputation, greatly exaggerated, for valuable medicinal properties, and hops have a long history of use in folk



medicine. Hop resin is bacteriostatic (against gram-positive organisms) and this factor may lend some credibility to use of hop in former times for treatment of certain types of epidermal sores and irritations, and bacterial infections such as tuberculosis. The hop plant is related to the hemp (marihuana) plant, tempting some to try to smoke the leaves. However, hops are devoid of the mood-altering chemicals found in marihuana. Hop plants are not considered toxic, although they have caused dermatitis in as many as one in 30 hop workers. Today, hop extract is used as an aromatic bitter principle in pharmaceutical preparations and in shampoos. Extracts are used in skin creams and lotions in Europe for their alleged skin-softening properties.

There is a long Eurasian tradition of using hops to induce sleep, including putting the cones in pillows, and planting hop beside bedrooms. Remarkably, American Indians independently adopted the soporific use of the plant. The tranquillizing effect commonly alleged in folklore for hops may have a logical basis in a sedative volatile alcohol, dimethylvinyl carbinol, which comprises up to 0.15% of the dried leaves.

The pharmaceutical use of hop is limited at present, but the use of hop shoots as a vegetable is an interesting possibility. Young shoots (6-10 cm long) are often consumed as a pot-herb, like asparagus. These spears can be boiled for 2-3 minutes, and then boiled in a change of water until tender. When steamed for 5 minutes and served with melted butter or cheese sauce, the shoots taste much like asparagus. In hop-producing areas of Europe, blanched hop spears are often served in fine restaurants. Hop farmers generally have surplus rhizomes from which the spears can be harvested, but because of their desire to maintain possession of unique hop strains, they may not be willing to sell them. In any event, there is a need to select strains that produce tasty shoots rather than good brews.

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## BOOK REVIEW

### A Cultural Perspective on a Widespread Plant Genus

When I first offered to review **"The Birch: Bright Tree of Life and Legend" by John L. Peyton (McDonald & Woodward, Blacksburg, Virginia, 1994, US$9.95)**, I expected it to be a new technical treatise, an update to the "Birch Symposium Proceedings" (U.S. Forest Service, NE Forest Experiment Station, 1969) sitting on my shelf. I was somewhat dismayed to receive a thin (73 pp.) paperback written for the lay public, laced with flowery prose, snippets of poetry, and pen and ink sketches by the author. However, upon completing this delightful book (a comfortable half-day read suitable for a snowbound log cabin, or wishing you were in one), I must say that our familiarity with all organisms would benefit from this sort of treatment. It revitalizes almost-forgotten information with the help of peoples whose lives were entwined with this tree for millenia.

Peyton briefly describes the taxonomy of Betulaceae, and the range, habitat, and autecology of the major species of ***Betula***, including their role in colonising disturbed forest land, stabilizing soils, shading trout streams, and the value of ***Alnus*** species in fixing nitrogen. But he is really a folklorist who has primarily compiled a number of North American and Eurasian tales involving birch trees. He especially emphasizes legends of the Anishnaabeg (Ojibway) and Same (Lapp) peoples. ***Betula papyrifera*** was as important to the material culture of the Anishnaabeg as ***Thuja plicata*** was to many Northwest Coast peoples, or as important as ***Bison bison*** was to the Plains Indians. Its value stemmed largely from its famously strong, flexible, and long-lasting bark. We are all familiar with its use in constructing canoes, lodges, and baskets, but I did not realize that the bark is easily molded upon soaking in hot water, and then holds its shape upon drying and cooling. Hence it has been used to make shoes, leg splints, and burial shrouds as well. Are there some modern applications for this traditional and renewable resource? It is suggested that the Anishnaabeg also practiced individual-tree selection harvesting of paper birch from self-sustaining, sacred birch groves ... perhaps a lesson for modern silviculturalists.

Similarly, ***Betula pubescens*** figures prominently as a raw material, a player in origin myths, and a symbol of spring and rebirth to many northern European peoples. Birch wood is valued for making furniture, bowls and spoons, now as in the past. The beginning of the growing season in northern cultures has been traditionally marked by the annual breaking of birch buds, and birch or alder sap is symbollically (even linguistically) equated with bear's blood and menstrual blood. Birch as a symbol of new life and vitality seems to reflect its phenological role in flushing earlier than many associated species, its pioneering role in ecological succession, and its ability to produce vigorous stump sprouts after apparently being killed. Peyton also describes how the birch has also played a prominent role as an element (and subsequently a symbol) of discipline ("the birch switch"), and of populism (the "fasces", a bundle of birch rods tied around an axe). Curiously, the perception that a birch tree offers safe shelter from a thunderstorm is found in both Eurasian and American folklore.

In closing his book, John Peyton says, "The birch tree still stands, a living presence, to remind us of times and places in which respect for nature was more important than the immediate pleasure and profit of the individual." For more examples of some the practical uses of the birch, I further refer the reader to George Matz's recent article, "The Worth of a Birch", published in the *International Journal of Ecoforestry* 10(3):141-145, 1994.

*Philip Burton, University of British Columbia*

*This book may be obtained directly from:* ***The McDonald & Woodward Publishing Co., P.O. Box 10308, Blacksburg, VA 24062-0308.***

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## ÉVALUATION DU LIVRE

**«La botanique redécouverte». Aline Raynal-Roques. 1994. Éditions Belin - INRA, Paris, France. 511 pages. 62.95$**

L'ouvrage **«La botanique redécouverte»** de Madame Aline Raynal-Roques, Professeure au Muséum National d'Histoire Naturelle de Paris, témoigne de l'oeuvre d'une vie. L'auteure se consacre aussi passionnément à l'étude et à la défense des plantes que d'autres à celle des animaux ou des droits de l'homme. L'auteure a su manier l'art de raconter la botanique avec une rigueur toute scientifique et sous la forme d'une belle et longue histoire. La valeur de ce livre tient au fait qu'elle sort la botanique de l'ombre pour lui redonner toute la lumière qu'elle mérite. Ce livre, teinté d'un style sobre et issu d'un esprit vif, est d'une écriture impeccable et est complémenté de dessins réalisés par l'auteure, de diagrammes et de figures aisément compréhensibles. L'ouvrage s'adresse tant à l'expert qu'à l'étudiant ou l'amateur.

**«La botanique redécouverte»** se divise en quatre parties comprenant douze chapitres. L'auteure introduit son propos avec l'évolution de la pensée botanique depuis Aristotle jusqu'aux contemporains. La première partie traite de l'importance de la systématique depuis la nomenclature la plus confuse en passant par la systématique linnéenne jusqu'aux classifications les plus modernes. Son propos, appuyé par de nombreux exemples, met en perspective les contextes socio-économiques et historiques de l'avancement de la botanique à travers les siècles.

La deuxième partie traite de l'évolution des cryptogames, incluant les mycètes, et discute de leurs caractéristiques, de leurs cycles de vie et de la diversité de leur métabolisme. On y traite de l'importance des associations symbiotiques dans l'évolution des végétaux terrestres. Puis l'auteure discute de l'évolution des Gymnospermes et de l'organisation des Angiospermes.

La troisième partie traite particulièrement de succès évolutif des plantes à fleurs via la description et l'interpretation d'importantes adaptations biologiques depuis les éphémérophytes du désert en passant par les épiphytes tropicales et jusqu'aux pyrophytes. Un sujet intéressant concerne la mobilité «discrète mais effective» des plantes, laquelle est inhérente à leur immobilité légendaire. L'auteure rend compte du dynamisme des plantes et de leurs diverses stratégies à se mouvoir.

La quatrième partie décrit, de façon exhaustive, la diversité des formes et met en évidence les «variations sur un thème» qui sous-tendent la diversité d'organisation et de fonctionnement du monde végétal. En conclusion, l'ouvrage rappelle l'inventivité des plantes qui se déploie dans toutes les directions et qui déborde souvent du «raisonnablement fonctionnel» et appelle au respect des plantes en tant qu'unités biologiques à part entière ainsi qu'à l'harmonie dans la dualité homme-plante. Les annexes comportent, en plus de l'index des termes cités, un lexique assez exhaustif et un aide-mémoire étymologique qui permet de retrouver le sens originel, du grec ou du latin, de termes usuels en botanique et en biologie. L'ouvrage de Madame Raynal-Roques, fait, comme son titre l'indique, découvrir et redécouvrir la botanique en remettant en perspective l'ultime importance des plantes.

*Christiane Charest, Professeure*
*Département de Biologie, Université d'Ottawa*

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## NEW PUBLICATION

**Rare Vascular Plants in the Northwest Territories. by Cheryl L. McJannet, George W. Argus and William J. Cody. 1995. Canadian Museum of Nature, Ottawa. Price: $16.00 [including postage, handling and GST).**

This publication, the latest to emerge from the **Canadian Rare Plants Project**, is divided into three sections. The first includes: an introduction, a definition of terms, methods, criteria for assessing rare status, an interpretation of distributional patterns, a summary on the protection of plants in the Northwest Territories, and a listing of future research requirements. The second section is an annotated list which treats 206 rare vascular plant taxa in the Northwest Territories. For each taxon the description includes: documentation supporting its rarity, phytogeography, rare status in other provinces and regions of Canada, the Nature Conservancy Global and Canada Ranks, habitat, relevant comments, and a map illustrating its distribution in the Northwest Territories. The third section includes three appendices: a listing by family (Appendix I), a phytogeographical list (Appendix II), and a list of excluded taxa with reasons for their exclusion (Appendix III). The rare taxa included in this publication represent a unique part of Canadian biodiversity and their recognition is an important step toward characterization and representation of northern ecosystems.

*This publication is available in English from:*

***Direct Mail,***
***Canadian Museum of Nature,***
***P.O. Box 3443, Station "D",***
***Ottawa, ON K1P 6P4.***
***Telephone: 1-800-263-4433 (toll free)***

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# The Plant Press / La Presse Botanique

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

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

### Creationism, now "Intelligent Design"

According to the columnist who wrote this article, the book **Of Pandas and People** (by Percival Davis and Dean Kenyon) is designed as "a small, apparently innocuous, school textbook", but really represents a clever strategy for getting creationism into American classrooms. The thrust of the book is obvious from this quote: "Life is like a manufactured object ... the result of intelligent shaping of matter." There is, of course, no mention of who or what is doing the "intelligent shaping", and no mention of god or religion. The authors even accept Darwinism as a method of "fine tuning" organisms, but emphasize that it could not lead to the formation of new species (citing obvious gaps in the fossil record as evidence). The book appears to have slipped past the watchful eyes of many biologists and is being used in several schools in the United States.

*Ben Macintyre, The Times of London, Dec. 19, 1994*

### Sex Life of Plants

Why don't all plants produce large showy inflorescences to maximize their reproductive potential? A recent paper in *Nature* by CBA member Lawrence Harder (Calgary) and Spencer Barrett (Toronto) addresses this question. Using genetic markers the researchers compared male reproductive success in different plants with varying numbers of flowers. They found that plants with fewer flowers were better at fertilizing other plants. An inflorescence with many flowers may be very attractive to pollinators, but it reduces the chance that a plant will mate with other plants because bees, for example, would tend to move pollen between flowers on the same plant. Barrett noted that botanists have tended to think that all that matters is the number of seeds a plant sets. Now it appears that success as a male parent is crucial to the plant because it helps to prevent inbreeding.

*Kitchener-Waterloo Record, Feb. 11, 1995*
*Toronto Star, Feb. 19, 1995*

### Japan's Forests cause Misery

About two-thirds of Japan's land area (some 62.3 million acres) is forested, with 41% being artificial plantations. Almost half of the plantations (around 10 million acres) are of Japanese cedar (***Cryptomeria japonica***) and these forests have been making life miserable for the 1 in 10 Japanese who are allergic to ***Cryptomeria*** pollen. In the region around Mt. Fuji, close to Tokyo, environmentalists report that you "can actually see a pollen fog coming from the cedar forests". Health risks were far from the minds of those who originally promoted the planting of Japanese cedar as a means of making Japan self-sufficient in the manufacture of wood products from their own forests. This strategy has failed, since Japan now obtains a greater proportion of its wood supply from abroad than before the planting of cedars began.

*James Sterngold, New York Times, Jan. 17, 1995*

### Another Weedy Garden Plant

***Rhododendron ponticum*** is a bright-pink flowered shrub which was introduced into Britain in 1763. It thrives on acidic, free-draining soils and, as a result, has become a serious weed on Exmoor, where it destroys heather moorland habitat needed by various birds and butterflies. Using grazers to control it seems out of the question, since apparently it is only eaten by the llama. So ... in an attempt to save moorland from the encroachment of this weed, the National Trust has allocated £10,000 for cutting down dense areas of shrub in the Bincombe area of Exmoor. Other parts of Britain under threat from ***Rhododendron ponticum*** include upland areas of Snowdonia (Wales) and lowland heath in Surrey.

*Michael Hornsby, The Times of London, Jan. 6, 1995*

### Locoweed fells Teenagers

There was a recent flurry of reports of American teenagers trying out the hallucinogenic properties of ***Datura***, commonly known as jimsonweed, thorn-apple or locoweed. Two Texas teenagers died last summer and in October several hallucinating teenagers were treated in hospitals in Connecticut and on Long Island, N.Y. (activated charcoal is used to adsorb the toxic compounds). Although all parts of the plant contain dangerous drugs, it is not illegal to possess the weed. Police are trying to determine if it is being sold on the street by drug dealers. The toxic effects come from a combination of alkaloids, including atropine and scopolamine. Symptoms, besides hallucination, include thirst, convulsions and possible coma in serious cases of poisoning. The effects usually develop within two to four hours, but can sometimes be delayed for a week or more. Dr. Tom Caraccio, a poison control expert on Long Island, noted that there seem to be periodic occurrences where adolescents seek out the weed and try it.

*K.-W. Record, Oct. 11, 1994*

## Sir David discovers Plants

Coming soon to an educational TV channel near you is the latest foray by Sir David Attenborough into the world of natural history programming, his 6-part, £3 million, series, **The Private Life of Plants**. Just before the broadcast of the first episode in Britain, Times columnist, Brenda Maddox, presented a scathing commentary on science programming in general (and on Sir David, in particular). "He lifts the veil on one corner of nature that even he has neglected: plant life", she writes, "... what we are about to receive is a massive dose of anthropomorphism. But is it science?" According to her, Sir David "ought to consider that his skills may be conveying a Disneyesque vision of Earth, on which animals, and even plants, are just like us, except nicer. Too often ... these programmes are masquerading as science, not science itself." She was also displeased with the "titillating cover" of the *Radio Times*, which "would do credit to a tabloid newspaper". She describes the cover as "the famous head grinning through thick foliage over an obscenely pink stamen". You might also be interested to know that elsewhere in this issue of the Times was an advertisement for a public lecture by Sir David which referred to him as "Britain's best known biologist". The public lecture was sponsored by Dillons (a well-known London bookstore, for those who have not been there), and was therefore probably a massive book-flog for the obligatory accompanying BBC book (a lucrative feature that many of these science series now feel they must produce).

Maddox goes on to bemoan the over-representation of animals, medicine and health topics in science programmes, whereas the process of scientific inquiry is "given short shrift". She also castigates programmers for the plethora of what she refers to as "anti-science" presentations (*e.g.* programmes on occult phenomena, UFOs, etc.) which are often treated as if they were scientific investigations. Near the end of her article, Maddox gives the following pointed advice to science programmers. "Science is the basic intellectual endeavour of the modern world, and science programmes which try hard to accommodate the disbelievers in the audience do a public disservice by suggesting that science is just another point of view, a collection of opinions by a self-interested minority. So what is the well-intentioned science producer to do? Have faith in the pulling power of the mystery of the universe and in the intelligence of the audience. They do not need interstellar space to be made personally relevant. Convey science as a process of investigation and consensus on what can be known about the real world. Resist programmes on Siamese twins, and leave debates about the supernatural to religious programmes."

*Brenda Maddox, The Times of London, Jan. 11, 1995*

## Testing Chinese Medicines

The pharmaceutical giant, Pfizer Inc., has signed a 3-year agreement with the Institute of Basic Theory at the Chinese Academy of Traditional Medicine in Beijing. Under the agreement Pfizer will extract and identify compounds from plants used in traditional Chinese medicines, and carry out rigorous tests of their efficacy against various diseases.

*Zhu Baoxian, China Daily, Jan. 24, 1995*

## Radio Stimulates Tree Growth

According to a recent report in *New Scientist*, low-frequency (76 Hertz) radio transmissions can cause certain trees to grow thicker and faster. The U.S. Navy has a huge (90 km long) antenna in the upper peninsula of Michigan which is used (since 1986) for low-frequency communication with submarines. Comparison of trees near the antenna with those 50 km away indicate that the radio transmissions affect the growth of some trees. Red pines grew taller and aspens and red maples grew thicker at the antenna site, whereas red oak and paper birch were unaffected by the electromagnetic radiation. The cause is yet to be determined, but researchers suspect that the radiation may produce an acceleration of nutrient movement across cell walls in the affected trees.

*Nick Nuttall, The Times of London, Jan. 12, 1995*



## G.J. joins O.J.

Gooseberry, which grows wild on over 4500 hectares in the Wanda Mountains of northeastern China, has become a new addition to the Chinese fruit drink industry. The Jiamusi City Concentrated Fruit Juice Factory, which also produces orange, watermelon and grape juices, now produces about 100 tons of gooseberry juice concentrate each year. About 30% is used locally to make soft drinks and other food products for the Beijing market; the rest is exported to Germany, Sweden, Denmark, Holland and several Asian countries. According to the China Food Hygiene Research Institute, gooseberries contain various vitamins (especially vitamin C) and are a good source of several amino acids. The berry's seeds are not discarded. They are an expensive ingredient in Chinese herbal medicines.

*Jing Ji, China Daily, Jan. 9, 1995*



## Test Tube Trees

Modern botanical methods are being used to try to save the fabled cedars of Lebanon, which have survived centuries of pillage and war, but which are endangered during the present peaceful period. Only four small forests of mature trees, some more than 1500 years old, remain. During the 15 years of civil war the forests were mostly inaccessible to the public. They were also protected by the Druze warlord, Walid Jumblatt, a militant conservationist. Now, however, hordes of tourists are tramping through the forests, destroying new shoots and preventing natural regeneration. In 1991 Lebanon turned to the Agricultural Institute at Beauvais, France, for help. Tissue culture experiments have been successful, producing test tube cedar trees which, if enough money can be found, can be used in a reforestation program in Lebanon.

*Christopher Walker, The Times of London, Feb. 28, 1995*



## The Story of Doufu (Tofu)

Bean curd (tofu, or "doufu", as it is spelled in this article) is supposed to have originated in Shouxian County, Anhui Province, China, and this is where connoisseurs say the best doufu is still made. The origin of bean curd is shrouded in legend. It is said to have been invented in the reign of Liu An, King of Huainan (main city in the county), who was the grandson of Liu Bang, founder of the Han Dynasty (206 BC).

Liu An wanted to be immortal, so he hired several alchemists to make "immortality pills" for him (the pills didn't get a chance to work ... he ended up being executed). One of the ingredients in the pills was soybean juice prepared by boiling soybeans in water. Legend has it that one day a pot of boiling soybeans was accidentally knocked over and the juice spilled over a limestone rock. The combination of soybean juice and limestone immediately produced bean curd. Since that time the recipe for making doufu, which requires the mixing of a limestone paste or plaster solution with soybean juice, has changed little. The current "King of the Bean Curd", Li Chuanxin notes that production of quality bean curd is a very skilled process, requiring close control of the processing temperature, the density of the plaster solution and the mixing of the heated soybean juice with the plaster. Briefly, Li's method starts with the soaking of soybeans in water for three hours. They are then ground to produce a milky liquid which is heated. According to Li, the temperature and duration of heating depend "totally on experience" (if too hot, the curd will be bitter; if too cool, it changes colour). While the juice is cooking Li mixes plaster with water to the correct consistency. Finally, and this is apparently the really skilled step, both solutions are poured simultaneously into a large basin and, instantly, snow-white bean curd forms. The best doufu, such as that produced by Mr Li, should be "like fine grease, pure white and without odor". Mr. Li, who learned his trade from his father (also a well-known doufu maker), produces about 40 kg of bean curd daily, supplying several restaurants and other customers in Huainan City, about 10 km from his village.

*Shi Lihong, China Daily, Jan. 9, 1995*

## Britain's Mr. Daffodil

The National Council for the Conservation of Plants and Gardens (NCCPG) is a British group dedicated to the preservation of many of the estimated 500-1000 garden cultivars which are lost each year. The group calls itself "a networked living germplasm repository", which depends on individual gardeners who make large collections of certain genera or families. Already the NCCPG has designated more than 600 of these as "National Collections". For example, the Prince of Wales (patron of NCCPG) has 57 cultivars of beech tree at his Highgrove estate, and Ray Stephenson, a teacher in Northumberland, has the National Collection of ***Sedum*** (more than 1000 potted specimens). By far the largest National Collection is that of Martin Harwood, who is obsessed by daffodils. He maintains about 100,000 bulbs, comprising hundreds of wild species and about 2800 cultivars. These range from ***Narcissus hedraeanthus***, with a tiny flower stalk about 2.5 cm high, to tall fully double cultivars. The R.H.S. Daffodil Register has more than 25,000 names and about 300 new ones are registered annually. The problem for Harwood is that new varieties are very expensive (£25-£75 per bulb), and he must wait a few years until they come down to "sane prices" (about £5). Harwood grows only 5 bulbs of those varieties he hates, but has hundreds of those he loves. His favourite cultivar is "Avalanche", with white, yellow-centred, flowers and a "ravishing perfume".

*Stephen Anderton, The Times of London, Feb. 25, 1995*

## Teaming Carotenoids is Best

According to researchers at a recent conference in Ventura, California, taking β-carotene pills is not the best way to obtain the antioxidant and anticancer effects of carotenoids. Carotenoids appear to work better as a team (with each other and with other phytochemicals in our food, such as indoles and flavonoids). Eating more carotenoid-rich vegetables is recommended. The best foods in terms of total carotenoid content are: tomato juice, kale, collards, spinach, sweet potato, swiss chard, watermelon, carrots and pumpkin. Current knowledge about the protective effects of various carotenoids include: lycopene (high in tomato and watermelon) against heart disease; lutein (broccoli, spinach) and β-carotene (broccoli, carrots) against lung cancer; and β-carotene against colon and bladder cancer. In addition β-carotene and canthaxanthin (a natural food colouring added to jellies, salad dressings, soft drinks and tomato juice) decrease the risk of skin cancer in laboratory rats.

*Jane Brody, New York Times, Feb. 21, 1995*

## Whatever turns you on ...

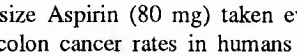
In a study aimed at combatting male impotence, Alan Hirsh of the Smell and Taste Treatment and Research Foundation (Chicago) tested various odors for their effect on penile blood flow. Any females who are trying to attract and "turn on" the opposite sex can now discard all of their expensive perfumes, because Hirsh found that the best "turn-on" odors (in terms of significantly increased penile blood flow) were mixtures of pumpkin pie and lavender and of doughnut and black licorice.

*Toronto Star, March 14, 1995*

## Cancer Conference Touts Plant Products

The American Association for Cancer Research met in Toronto in March and interviews with several researchers who presented papers were featured in local media (radio, TV and newspapers). Plants and plant products as cancer fighters seemed to fascinate interviewers. In addition to reporting the anti-cancer benefits of eating green vegetables containing large amounts of carotenoids (described above), researchers presented results of new studies on an old remedy originally derived from plants, acetyl salicylic acid. A research team at the University of Michigan announced that a dose of child-size Aspirin (80 mg) taken every three days could reduce colon cancer rates in humans by about 50%. Another study, by researchers at the University of Illinois, reported "amazing" results in treating human melanomas in laboratory mice with betulinic acid, a chemical which makes up about 20% of birch bark. If forthcoming human tests confirm these results, the treatment of human skin cancer, for which advanced cases have very low 5-year survival rates (2-5%), will be revolutionized. Perhaps more important, the source tree is widespread and plentiful.

*Kitchener-Waterloo Record, March 22, 1995*



# MEETINGS / CONGRÈS

## Systematics Symposium

Rancho Santa Ana Botanic Garden at Claremont, California, is presenting its **11th Annual Southwestern Botanical Systematics Symposium** on **May 26-27, 1995**. The topic will be **The New Morphology: Integrative Approaches.** The keynote speaker is Elliot M. Meyerowitz, California Institute of Technology, discussing **Models for the Developmental Origin of Patterns in Flowers**. Papers will be presented by Andres Collazo, California Institute of Technology ("Integrative Approaches for the Study of Developmental, Molecular and Evolutionary Biology"), Mark Running, California Institute of Technology ("Using Confocal Laser Scanning Microscopy in the Study of Plant Structure and Development"), Geeta Bharathan, University of California at Davis ("Phylogenetic Approach to the Evolution of Leaf Development in Monocotyledons"), Cynthia Jones, University of Connecticut ("The Concept of Bauplan and its Relevance to Interpretation of Diversity in Seedling Structure in Pelargonium"), John F. Doebley, University of Minnesota ("Genetic Analysis of the Morphological Evolution of Maize"), and Rob DeSalle, American Museum of Natural History ("Insect Model Systems for Studying the Interface between Developmental Genetics and Evolution"). If you are interested in purchasing the Symposium issue of *Aliso*, contact the Garden and ask to be sent an order form when it becomes available. For information, call **Ann Joslin at 909-625-8767, ext. 251 [E-mail: joslina@cgs.edu].**

## Mycology Symposium

The 5th Symposium on **Topics in Mycology: Host-Fungus Interplay** will be held in Stanford, California, **June 27-30, 1995.** Obtain further information from: **Hugo Vanden Bossche, Department of Comparative Biochemistry, Janssen Research Foundation, B-2340 Beerse, Belgium. FAX: (32) 14 602841.**

## Symposium includes Plant Toxins

**The Fifth Pan American Symposium on Animal, Plant and Microbial Toxins** will be in Frederick, Maryland, from **July 30 to August 4, 1995**. For information, contact: **Dr. Kay A. Mereish, Toxinology Div., USAMRIID, Fort Detrick, MD 21702-5011. FAX: 301-619-2348.**

## Apomixis Workshop

The Institute of Botany, Academy of Sciences, of the Czech Republic is sponsoring a **Workshop on Apomixis and Taxonomy** which will be held in Pruhonice, near Prague, **August 8-11, 1995**. For information, contact: **Apomixis & Taxonomy Organizing Committee, Institute of Botany, Academy of Sciences, CZ-25243 Pruhonice 1, Czech Republic**, or send E-mail inquiries to **Karol Marhold [botukmar@savba.sk].**

## Nitrogen Fixation Conference

**The 15th North American Symbiotic Nitrogen Fixation Conference** will be held in Raleigh, North Carolina, **August 13-17, 1995**. For information, contact: **Dr. Gerald H. Elkan, Dept. of Microbiology, North Carolina State University, Box 7631, Raleigh, NC 27695. FAX: 919-856-4598.**

## Chloroplast Development

An international meeting on **The Molecular Biology, Biochemistry and Physiology of Chloroplast Development** will be held at Philipps University Marburg, Marburg, Germany, **August 13-18, 1995.** Topics of sessions include: gene organization & regulation; synthesis of protein complexes, pigments, metabolic enzymes & membranes; protein translocation & processing; developmental controls; and chloroplast phylogeny. For further information, contact Horst Senger via E-mail **[senger@mailer.uni-marburg.de]**.

## Electron Microscopy Congress

**The Third Interamerican Congress on Electron Microscopy and the XV Meeting of the Brazilian Society of Electron Microscopy** will be held jointly in Caxambu, Minas Gerais, Brazil, **September 2-6, 1995.** Obtain further information from: **Dr. Elliot W. Kitajima, Departamento de Biologia Celular, Universidade de Brasilia, 70919-970 Brasilia, DF, Brasil. E-mail: kitajima@guarany.cpd.unb.br**

## Society for Ecological Restoration

**The 1995 Annual Meeting** of this Society will be held in Seattle, Washington, **September 14-16, 1995**. The meeting will feature a symposium entitled: **The Role of Restoration in Ecosystem Management**. Several one- and two-day field excursions are planned to view restoration projects in the Pacific Northwest region (from Oregon to B.C.). Address registration inquiries to: **SER Conference Registration, 1207 Seminole Highway, Madison, WI 53711. Telephone: 608-262-9547.**

## Tree Symposium/Colloque "L'arbre"

**The Tree - Biology and Development (3rd International Symposium)** will be in Montpellier (France), **11-16 September 1995**. This symposium will attempt to enhance contacts between scientists working in temperate and tropical regions, and to provide in-depth knowledge on the various aspects of current research on woody plants. The official languages are French and English, with simultaneous translation. Information: **Colloque "L'Arbre", Institut de Botanique, 163, rue A. Broussonet, 34000 Montpellier, France. Tel.: (33) 67 63 17 93 Ext. 120; FAX: (33) 67 04 18 70; E-mail: blanc@lmgc.univ-montp2.fr**

## Weed Symposium - 1996

**The Sixth Parasitic Weed Symposium** will be held in Córdoba, Spain, **April 16-18, 1996. For information, contact: Secretaria de "6th Parasitic Weed Symposium", Centro de Investigación y Desarollo Agrario, Apartado 4240, 14080 Córdoba, Spain.**

## East Asian Floristics - 1996

**The International Symposium on Floristic Diversity and Characteristics of East Asia** will be in Kunming, China, **July 25-28, 1996.** The working language of the Symposium will be English. For information, contact: **Prof. Wu Sugong, Secretary-General, ISFDCEA, Kunming Institute of Botany, Chinese Academy of Sciences, Heilongtan, Kunming, Yunnan, Peoples Republic of China.**

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