THE CANADIAN BOTANICAL ASSOCIATION

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BULLETIN

L'ASSOCIATION BOTANIQUE DU CANADA

January 1979 Volume 12 Number 1 Waterloo

ANNUAL MEETING – 1979 – CONGRES ANNUEL

June 17-21, Carleton University, Ottawa, Ontario.

Theme: 'Plants for Man: Plant Science in the Service of Society'.

Schedule:

15-17 June (Fri.-Sun.):		Pre-meeting field trips in Ottawa district. (see details below)
17 June (Sun.) p.m.:		Registration and evening reception for delegates.
18 June (Mon.) a.m.:		Opening Ceremonies; Plenary Session.
		Keynote Speaker - Walter H. Lewis, Henry Shaw Botanical Garden and Washington University, St. Louis, Missouri, U.S.A.
		Symposium: Documenting Plant Form and Development.
	luncheon:	Sectional Meeting and walking tours of campus.
	p.m.:	Symposium concluded.
		Contributed papers - oral and poster session, the latter remaining in place to Thurs. noon.
	dinner:	Sectional Meeting.
	evening:	Hands-on-workshop - Plants in the Laboratory: Techniques in Teaching and Research.
19 June (Tues.):		
	breakfast:	Sectional Meeting.
	a.m.:	Contributed papers.
	luncheon:	Sectional Meeting.
	p.m.:	Contributed papers.
	dinner:	Sectional Meeting.
	evening:	Informal Panel: Canadian Botany looks Outward - Contributions to Third World Development.
20 June (Wed.) a.m.:		Open House, Research Branch, Agriculture Canada.
	luncheon:	Main campus of Central Experimental Farm.
	p.m.:	Visit to Government House.
		Contributed papers.
	4:30 p.m.:	Annual Business Meeting.
	8:00 p.m.:	Annual Banquet and Awards. - Guest Speaker of renown. - Entertainment and Dance.

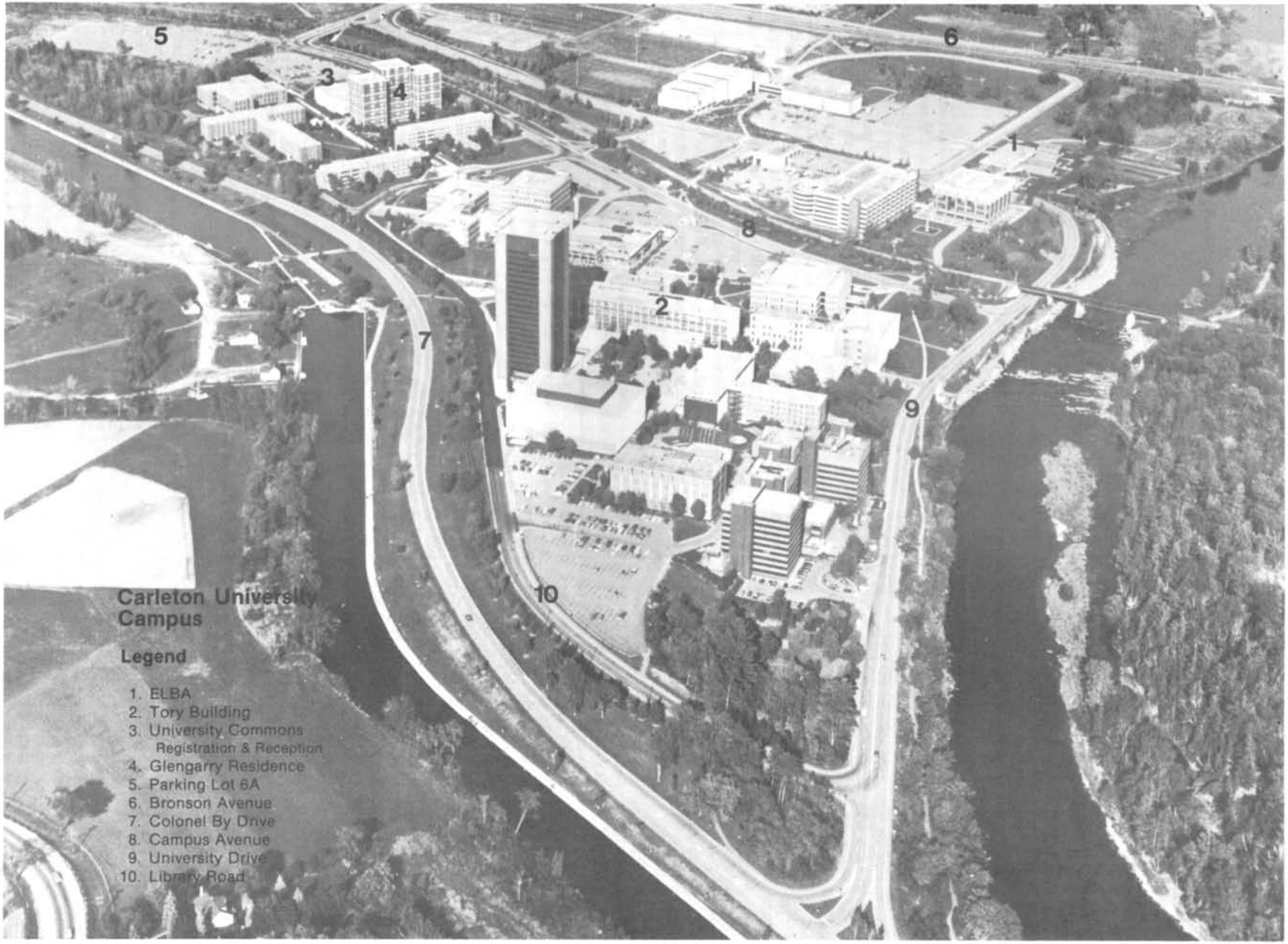
21 June (Thurs.)	a.m.:	Symposium: "Landmark events in the evolution of plants" co-sponsored by the Canadian Association of Palynologists.
	luncheon.	
	p.m.:	Wrap-up and closing Plenary Session: farewell reception at ELBA (Environmental Laboratories and Greenhouses) and bon voyage.

17-21 juin, l'Université Carleton, Ottawa, Ontario.

Theme: 'La végétation et la botanique servent l'humanité'.

Horaire:

15-17 juin (Ven.-Dim.):		Excursions dans l'ouest du Quebec et l'est de l'Ontario. (voir informations ci-bas)
17 juin (Dim.)	p.m.:	Inscription et réception.
18 juin (Lun.)	a.m.:	Inscription; Cérémonie d'ouverture; Réunion plénière.
		La Thème - Walter H. Lewis, Henry Shaw Botanical Garden et Washington Université, St. Louis, Missouri, U.S.A.
		Symposium: Documentation sur la forme et le développement des plantes.
	déjeuner:	Réunion d'affaires (section) et nous allons faire une promenade sur le domaine universitaire.
	p.m.:	Symposium se termine.
		Communications orales en affiches.
	dîner:	Réunion d'affaires.
	soir:	Ateliers de travail - les plantes dans l'enseignement et la recherche.
19 juin (Mar.)	a.m.:	Communications. (Réunions d'affaires
	p.m.:	Communications. ((sections) aux heures du (repas.
	soir:	Contribution Canadienne à la botanique dans le tiers monde.
20 juin (Mer.)	a.m.:	Visites à la Station de Recherche d'Ottawa et aux Instituts de recherche en botanique d'Agriculture Canada.
	déjeuner:	A la ferme expérimentale centrale.
	p.m.:	Visite à la residence de son excellence le Gouverneur General.
	4:30 p.m.:	Assemblée générale.
	8:00 p.m.:	Banquet et présentation des prix de l'Association. - Orateur invité. - Divertissement et bal.
21 juin (Jeu.)	a.m.:	Symposium: "Evènements significatifs dans l'évolution des plantes" commandité par le Réseau A.B.C. et l'Association Canadienne des Palynologists.
	p.m.:	Pour conclure, réunion plénière au Pavillon Tory et comité d'adieu à ELBA, les serres de Carleton.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Carleton University
Campus
Legend
1. ELBA
2. Tory Building
3. University Commons
Registration & Reception
4. Glengarry Residence
5. Parking Lot 6A
6. Bronson Avenue
7. Colonel By Drive
8. Campus Avenue
9. University Drive
10. Library Road

Pre-Meeting Field Trips (15-17 June)

Two days of field trips to examine the distinctive features of the floras of areas of Eastern Ontario and Western Quebec close to Ottawa are being organized. Participants will assemble for an informal evening reception and orientation at the Carleton University Commons on Friday, June 15. An all-day trip on Saturday will visit distinctive sites to demonstrate dramatic edaphic control of vegetation between Ottawa and the Almonte area. Two half-day excursions on Sunday will allow participants to visit Ramsayville Marsh and Mer Bleue Bog in the morning and the Gatineau Hills of Quebec in the afternoon.

Program

Under the theme, our meetings this year will highlight both the way plants and the study of plant life can benefit mankind and the diverse ways in which plant sciences can serve society. We are fortunate to have Dr. Walter H. Lewis, a native of the Ottawa Valley, return-ing home to be our keynote speaker. Both Walter and his wife, Memory, are involved in aspects of plants and plant utilization in relation to health. We look forward to their presence at our deliberations.

An exciting symposium is being planned for the program of the first day, dealing with documentation of plant form and development by sophisticated modern techniques. It will be followed in the evening by a practical workshop in which these and other techniques for use of plants in teaching and research laboratories will be demonstrated.

Part of Monday afternoon and all of Tuesday morning and afternoon will be devoted to presentation of orally delivered papers grouped in several sections. Students are particularly urged to submit papers; the best paper presented will win the Lionel Cinq-Mars Award ($50.00)

Wednesday presents us with the opportunity of seeing plant science at work in the service of our nation, particularly the research efforts of Canada Agriculture, where we will be guests during the morning (and for lunch) at the Central Experimental Farm. Other areas of public service involvement in plant research will occupy the early afternoon.

The final symposium on Thursday will feature a number of eminent paleobotanists discussing certain landmark events in the evolution of plants under the chairmanship of Dr. D. Colin McGregor. It will complement the publication which arose from CBA's first symposium on 'The Evolution of Canada's Flora'. Early evolution of land plants, origin and evolution of conifers, and early evolution of phytoplankton will be among the topics to be presented.

Call for Contributed Papers

This announcement is the first call for papers for the 1979 CBA Meeting. This year for the first time papers may be presented by poster display rather than orally. The poster method has proved an efficient and interesting way of presenting certain types of data and provides an opportunity for thoughtful interaction between author and viewer. Instructions for presentation of abstracts are available on the insert sheet.

Excursions

On organise deux jours d'excursions pour examiner les traits distinctifs de la flore de certaines régions de l'est de l'Ontario et de l'Outaouais québécois. Il y aura une soirée d'orientation pour les participants le vendredi 15 juin. La première excursion, le lendemain, consistera à visiter des sites distinctifs pour démontrer le contrôle édaphique de la végétation dans la région s'étendant d'Ottawa à Almonte. Le dimanche matin, on visitera le marais de Ramsayville ainsi que la Mer Bleue (de sphaigne), et dans l'après-midi les collines de la Gatineau.

Programme

D'après notre thème, les réunions de cette année mettront en lumière les différentes façons dont les êtres humains bénéficient des plantes et de l'étude de celles-ci, ainsi que les façons dont les sciences des plantes rendent service à la société. Nous sommes heureux d'annoncer que M. Walter H. Lewis revient dans son pays natal, la Vallée de l'Outaouais, pour faire la conférence principale. M. Lewis et son épouse Memory travaillent sur les rapports entre l'utilisation des plantes et la santé. Les deux participeront à nos discussions.

Un symposium passionnant figure au programme de la première journée. Il s'agit de la documentation sur la morphologie et l'évolution des plantes au moyen de techniques modernes perfectionnées. Un atelier, le soir, présentera des démonstrations de l'utilité de ces techniques pour l'enseignement et les laboratoires de recherches.

Une partie de lundi après-midi, et toute la journée de mardi, seront consacrées à la présentation de communications orales, regroupées en plusieurs sections. Les étudiants sont particulièrement invités à soumettre des communications, dont la meilleure se verra décerner le prix Lionel Cinq-Mars ($50.00).

Mercredi, nous aurons l'occasion de voir la science des plantes à l'oeuvre, au service du pays (en particulier les recherches d'Agriculture Canada) alors que nous serons les hôtes de la Ferme Expérimentale pendant la matinée et pour le repas de midi. Au début de l'après-midi, on verra d'autres aspects des recherches sur les plantes au niveau de la Fonction publique.

Au dernier symposium, jeudi, sous la présidence de M. D. Colin McGregor quelques paléobotanistes éminents discuteront de certains événements marquants dans l'évolution des plantes. Ce symposium complétera la publication qui a fait suite au premier symposium de l'ABC: "L'Evolution de la flore canadienne". Le symposium portera, entre autres, sur l'évolution primitive des plantes terrestres, l'origine et l'évolution des coniferes, et l'évolution primitive du phytoplankton.

Demande de communications

C'est la première invitation que nous lançons pour la réunion de 1979. Cette année, pour la première fois, les communications peuvent être faites soit oralement soit sous forme d'affiches. Cette dernière méthode s'est avérée efficace et intéressante pour la présentation de certains types de données et facilite des échanges réfléchis. Des renseignements sur la présentation de résumés se trouvent sur l'encart.

Photo Salon

A photo and botanical illustration competition will be held again this year, displayed in the main conference centre (Tory).

Social Program

Ottawa provides a variety of interesting activities for the enjoyment of her visitors. A complete range of options is being planned for the entertainment of spouses and dependents so that they should experience few dull moments; recreational facilities are available on the campus for registrants and their families. Further information will follow in a spring mailing.

Transportation and Accommodation

Ottawa is easily accessible by air, rail, or bus from all centres. Accommodation is available in air-conditioned suites in the main Carleton Residence Building (Glengarry House) and participants are urged to take advantage of the package plans offered by the University for lodging and meals; accommodation (4 nights) and meals are about $70.00 based on double room occupancy, limited single rooms available at about $90.00. Parking will be available to delegates arriving by car.

Off-campus. For those who may wish to stay off-campus, there are numerous hotels and motels as well as trailer-camps in the Ottawa area, albeit not conveniently close to the Campus.

Salon de Photo

Un concours de photographies et d'illustrations botaniques aura lieu encore cette année. L'exposition se trouvera au Centre du Congrès (Tory).

Activities exterieures

Ottawa est une ville intéressante et agréable à visiter. Les conjoints et les enfants des congressistes ne devraient pas s'ennuyer. Toute une gamme d'activités seront mises à leur disposition, y compris les installations récréatives du campus. De plus amples renseignements suivront dans l'envoi du printemps.

Transport et logement

On peut se rendre facilement à Ottawa en avion, en autobus, et par le train. Les chambres climatisées de la résidence étudiante Glengarry sont à la disposition des congressistes et de leurs familles à qui on recommande, d'ailleurs, de profiter du plan forfaitaire: logement (4 nuits) et repas au prix total de $70.00 (approximativement) par personne (chambre double). Il y a un nombre limité de chambres simples à $90.00. Le stationnement est disponsible sur le campus.

En ville

Pour ceux qui préféreraient loger ailleurs il y a de nombreux hôtels et motels, ainsi que des terrains de roulottes dans la région. Ces derniers sont, cependant, assez éloignés du campus.

MEMORIES OF MEETINGS PAST

Those who toiled up the steep and (seemingly) endless slope of Gros Morne will recall the scene depicted in the photograph sent by Gerry Mulligan. Your editor well recalls the tiring climb, the force of the wind on the top and the stiffness which developed the next day!

CALL FOR NOMINATION FOR LAWSON MEDALS

Each year the CBA/ABC invites its entire membership to make nominations for the George Lawson Medal. The purpose of the award is "To provide a collective and formal expression of the admiration and respect of botanists in Canada for the excellence of the contribution of an individual to Canadian Botany". Any botanist working permanently in Canada or having spent the greater part of his career here is eligible.

In any year, a maximum of two awards may be made, one in each of the two categories outlined below, although only a single award or no award need be made as the Awards Committee judges appropriate. The two categories are:
1. A single contribution to botanical knowledge of outstanding distinction. Commonly this would take the form of a published paper, a series of papers, a monograph or a book by a botanist at any stage in his professional career. The contribution should be of singular significance to the discipline at large.
2. Recognition of the cumulative, distinguished contributions of a senior investigator and/or teacher and/or administrator who has worked in Canada for the greater part of his career, and whose influence has contributed notably to the advancement of Canadian Botany.

In order that the Awards Committee may learn of botanists who are eligible for these awards, all members of the Canadian Botanical Association are invited to submit nominations and to consult with their colleagues for suggestions. Nominations should be accompanied by a clear statement of the nominee's contribution to botany in Canada and as much documentation as possible. Letters by others who support the nomination would also help the Awards Committee in reaching its decision. Nominations should be sent to the Chairman of the Awards Committee -

Dr. Jennifer M. Walker Shay
Department of Botany
University of Manitoba
Winnipeg, Manitoba, R3T 2N2

NEWS FROM THE SECTIONS

The Systematics and Phytogeography Section

The annual meeting of the Systematics and Phytogeography Section, held on August 14, 1978, at Memorial University, St. Johns, Newfoundland was well attended by approximately 50 members. The constitutional amendments, enabling mail votes to be taken, were passed. The members elected to the executive committee for 1978-79 were M.E. Barkworth, C. Hamel, V.L. Harms, S.P. Vander Kloet and D. Woodland. Subsequently, M.E. Barkworth was appointed Chairman and V.L. Harms, Secretary.

Other highlights of the business meeting included (1) the announcement by I. Brodo that the computerized checklist of Canadian lichens is now a reality, although improvements are still being incorporated, (2) the report by G.W. Argus that the "Rare and Endangered Plant Species" lists for the provinces and territories are progressing well, with three provincial lists completed and most others in various stages of preparation, (3) the reports by J.M. Gillett and P. Roberts-Pichette that information on the revived "Flora North America" program, and the Canadian representation with regard to it, appeared confused, and (4) a lively but time-limited discussion, initiated by J.M. Gillett, based on a communication from P.R. Gorham, concerning the licensing and permit requirements for research work in the North. Further details and some interesting (controversial?) questions concerning the latter have already been published in the October 1978 issue of the CBA/ABC Bulletin, and comments solicited. These can be sent to either Dr. J. Shay (University of Manitoba, Winnipeg), President of CBA/ABC, or Dr. M. Barkworth (Biosystematics Research Institute, Ottawa), Chairman of the Section.

The annual business meeting was followed by a special meeting called by J.M. Gillett to discuss the advisability of setting up a consortium of Eastern herbaria. While rejecting the consortium concept itself, this special meeting proposed the appointment of an herbarium subcommittee to be concerned with all Canadian herbaria, to be chaired by D. Woodland (see the following report by M.E. Barkworth).

The complete minutes and revised statutes are being sent to current members of the section. The necessity for a French translation has delayed the latter.

Proposed Consortium of Eastern Canadian Herbaria

A meeting to discuss formation of a consortium of Eastern Canadian Herbaria was held at St. John's, Newfoundland, on August 14, 1978. It was chaired by J.M. Gillett who asked D. Woodland to elaborate on his inital suggestion. After reviewing some of the activities of the Northwest Consortium, Woodland suggested some areas in which he felt an Eastern Canadian Consortium might be active. Among these were: compilation of type and generic inventories, co-ordination of orders, specialization of collections and possible relocation of specimens. The meeting was then opened for discussion. During the discussion several points were made, some of them being: there is no current listing of Canadian herbaria, the Index Herbariorum listing omits many small herbaria located at forest service centres, parks, etc.; curators are responsible to their superiors for the collections in their care and do not, therefore, have absolute control over them; although there is a need for herbarium curators to discuss their work, a consortium might well prove to be a bureaucratic body that created work rather than helped solve problems; and the systematics and phytogeography section used to have an herbarium committee that should be reactivated.

In the end it was decided to appoint D. Woodland as chairman of an herbarium subcommittee within the Systematics and Phytogeography section of CBA/ABC. The first priority of the subcommittee is to obtain an up-to-date listing of all Canadian herbaria, drawing in part on, but updating, the information obtained by J. Soper. The subcommittee will also attempt to identify common problems of many herbaria, and encourage exchange of information and ideas. It was also agreed to request that at future CBA/ABC meetings time should be set aside for a meeting of herbarium curators.

Report prepared by M.E. Barkworth, Secretary, Systematics and Phytogeography Section.

WHAT'S ON IN SYSTEMATICS AND PHYTOGEOGRAPHY IN CANADA - continued from the October 1978 Bulletin (p. 69).

UNIVERSITE DU QUEBEC A MONTREAL (Contact: C. Hamel)

Claude Hamel is collaborating with Pierre Bhereur in a study of the riparian and aquatic vegetation of the Upper Richelieu and some lakes of the Laurentian Region. Also under the direction of Claude Hamel the following graduate research projects are being conducted: (1) study of the flora and ecology of the vegetation in the Chambly Bassin and on Ste. Therese Island (Richelieu River) by Hubert Marchand; (2) study of the floristics and plant ecology of Mont St. Bruno by Louise Gratton; (3) study of the floristics and plant ecology of the calcareous areas of the Missisquoi Region by Andre Cloutier; (4) study of the floristics and plant ecology of Mont Tremblant by Jacques Dugal; (5) study of the riparian and aquatic vegetation with the aid of aerial color and infra-red photography by Denis Jacques; and (6) study of the incidences of the seasonal inundations of the vegetation in the Upper Richelieu by Guy Decarie (under the codirection of P. Bhereur).

THE THIRD PLANT DEVELOPMENT WORKSHOP was held on Saturday, October 28 at Scarborough College. The meeting, organized by Dr. R.E. Dengler, included the presentation of the following papers and posters.

PRESENTED PAPERS

1. Secretory tissues in Caltha palustris (marsh marigold) carpels. R.L. Peterson, M.G. Scott, and S. Miller, Univ. of Guelph.
2. Involvement of microtubules and microfilaments in secondary wall orientation in radish root hairs. R. Seagull, York Univ.
3. French and Anglo-Saxon views on leaf development. R. Sattler and M. Dubuc-Lebreux, McGill Univ.
4. Evidence of heteroblastic leaf development in corn and other grasses. R.I. Greyson and D.B. Walden, Univ. of Western Ontario.
5. Anther-ear 1 (an 1) - a tool for studying the control of flower development. A.J. Karpoff, Univ. of Louisville.
6. The extraction and characterization of auxin from corn inflorescences. B. Schroeder, Univ. of Western Ontario.
7. Stem elongation in corn - some preliminary observations. W.J. Smith, Univ. of Western Ontario.
8. The physiognomy of tobacco plants and protoplast isolation. P.B. Hamilton and R.B. van Huystee, Univ. of Western Ontario.
9. Elemental composition of globoid crystals in protein bodies from different regions of wheat grains. E. Spitzer and J.N.A. LoTt, McMaster Univ.
10. Floral organography in the Amentiferae - problems and the role of organogenesis. A. MacDonald, Lakehead Univ.
11. The mucigel on the surface of the root epidermis in corn. J.K. Clarke, Carleton Univ.
12. An autoradiographic study of cell wall development in the corn root epidermis. S.F. Kaine, Carleton Univ.
13. Apoplastic pathways in the root of broad bean (Vicia faba L.) C. Peterson, Univ. of Waterloo.
14. Root growth and cell proliferation in Vicia faba: temperature effects. R.L. White, McMaster Univ.
15. The histology of the graft union in pea roots. F.L. Stoddard, Carleton Univ.
16. Regeneration of vascular tissue and lateral root development in wounded pea roots. M.E. McCully, Carleton Univ.
17. Differential behavior of sister nuclei in caffeine induced binucleate cells of Vicia faba. S.W. Armstrong, McMaster Univ.

POSTERS

1. Ultrastructure and histochemistry of Pellaea epidermal cells. R.L. Peterson, S.J. Rigby, and M.G. Scott, Univ. of Guelph.
2. Secretory tissues in Caltha palustris L. carpels. R.L. Peterson, M.G. Scott, and S. Miller, Univ. of Guelph.
3. Hormones and in vitro development of epiphyllous buds in Bryophyllum calycinum. A.J. Karpoff, Univ. of Louisville.
4. Comparsion of the development of male sterility in the three mutants ms 2, ms 9 and ms 10 of maize. P.C. Cheng, R.I. Greyson and D.B. Walden, Univ. of Western Ontario.
5. The relationship between resistance to dessication and root anatomy. C. Wilson and C.A. Peterson, Univ. of Waterloo.

The workshop was attended by about fifty faculty, graduate students and technicians with an interest in some aspect of plant development. A stimulating discussion on the definition of a plant meristem took place. Dr. N. Dengler organized a buffet lunch served in the faculty lounge.

Plant Development Workshops are held twice yearly on a Saturday at some university in Southern Ontario. The spring meeting is being organized by Drs. R.L. Peterson and U. Posluszny and will be held at the University of Guelph on April 7, 1979. Anyone requiring additional information on the forthcoming meeting should contact Dr. Peterson (Dept. of Biology and Genetics, University of Guelph, Guelph, Ontario). All interested individuals are welcome to attend.

PLANT CONSERVATION IN CANADA

CBA/ABC Executive Committee, at its Winnipeg meeting in October 1978, authorized me to establish a sub-committee and invite membership views about the value of creating a standing CBA/ABC CONSERVATION COMMITTEE.

There would appear to be several cogent reasons for such a committee:

i) Professional botanists can express their concern through the authoritative voice of the CBA/ABC.

ii) Overall plant conservation policies for Canada or its constituent regions can be developed.

iii) The Conservation Committee, which would comprise experts, could readily evaluate the significance of supporting local efforts, thus by-passing the current cumbersome machinery of CBA/ABC. This would appear to have particular merit in those numerous cases where local biologists are faced with making rapid decisions. Obviously, with the support of CBA/ABC Conser-

vation Committee, their arguments would have increased weight.

iv) Lobbying to increase the number and professional status of plant ecologists and systematists employed by Federal, Provincial and other agencies permanently involved with environmental protection. I believe that it can be agreed that parks professionals tend to be wild-life oriented, or planners, while major museums are probably underrepresented by professional botanical staff. Clearly a spectrum of Ph.D. level botanists is required in these positions and a still larger number of B.Sc. level assistants.

Probably learning to develop scientifically useful and publicly acceptable policies would be our main function. In this the delicate art of lobbying is clearly central.

If you have any comments, even mere agreement, please send them to me at the following address;

Dr. J.B. Phipps
Department of Plant Sciences
University of Western Ontario
London, Ontario, N6A 5B7

DARBAKER PRIZE IN PHYCOLOGY FOR 1979 - announcement by the Botanical Society of America

The Committee on the Darbaker Prize of the Botanical Society of America will accept nominations for an award to be announced at the Annual Meeting of the Society at Oklahoma State University, Stillwater, in August 1979. Under the terms of the bequest, the Award is to be made for meritorious work in the study of microscopical algae in all its facets. At present, the Award is limited to residents of North America, and only papers published in the English language will be considered. The value of the prize for 1979 is expected to be about $425. The Committee will base its judgement primarily on the papers published by the nominee during the last two full calendar years, i.e., papers dated 1977 and 1978. Nominations for the 1979 award, accompanied by a thorough statement of the merits of the case and by reprints of the publications for 1977 and 1978 supporting the candidate, must be received by April 1, 1979, by the Chairman of the Committee, Dr. Karl R. Mattox, Department of Botany, Miami University, Oxford, Ohio 45056. For further information write the Chairman or call him at (513)529-5321.

DIRECTORY OF MYCOLOGISTS

In the October issue of The Bulletin (p 64) we published a request for information by the Mycology Section re preparation of a Directory of Mycologists. We omitted to include the address of Dr. Traquair to whom information should be sent. His address is:

Dr. James A. Traquair
Research Station
Research Branch, Agiculture Canada
Lethbridge, Alberta, T1J 4B1

FORTHCOMING MEETINGS

An International Conference on POLYPLOIDY: BIOLOGICAL RELEVANCE will be held at Washington University (St. Louis) May 24-27, 1979. Cytotaxonomists and cytogeneticists in botany, zoology, and agriculture will find a broad range of lectures and workshops by world-renowned scientists who will discuss plant and animal evolution, and agricultural crops in relation to polyploidy. Anyone desiring a brochure outlining the Conference and a registration form should contact Walter H. Lewis, Department of Biology, Washington University, St. Louis, Missouri 63130.

The Fourth Plant Development Workshop will be held on Saturday, April 7, 1979 at the University of Guelph. For further information please contact Dr. L. Peterson, Botany and Genetics, University of Guelph, Guelph, Ontario N1G 2W1. Tel. (519)824-4120, ext. 3278.

United Nations Conference on Science & Technology for Development (UNCSTD), Vienna, August 1979

This UN conference has been devised as a mechanism to focus world attention on the special problems of the application of science and technology to the benefit of the developing countries. The conference will not be a scientific conference in the sense of an earlier UN conference held in 1963 entitled a "Conference on the Application of Science & Technology for the Benefit of the Less Developed Areas" which focussed on an interchange of scientific and technical information. UNCSTD will focus on the application of science and technology to social, economic, institutional or political development and will particularly concern itself with the identification and means for removal of the difficulties that impede the application of science and technology in contributing to the development goals and priorities of the developing nations. The conference will be structured around five subject areas, viz: Food & Agriculture; Natural Resources including Energy; Health, Human Settlement & Environment; Transport, Communications and Industrialization.

It is important that the preparations for UNCSTD receive some attention from the Canadian scientific, technical and social science community and that suggestions and ideas from individuals, groups and institutions from this community be sought and made available for consideration by the Government of Canada's delegation. It would be most desirable if a series of practical and pragmatic suggestions could be assembled which could comment on possible new initiatives that could stimulate more effective involvement of our Research & Development community. The Royal Society of Canada and SCITEC have been charged with calling for such an input and it is requested that comments and suggestions be sent to: SCITEC (UNCSTD)
Suite 202
151 Slater Street
Ottawa K1P 5H3

Further information can also be obtained if required from the above address.

THE ORISKANY SANDSTONE FORMATION IN ONTARIO

Members of the CBA have asked the Association for support in attempts to preserve an important site in Ontario. After considering the proposals, the CBA Executive Committee, at its Fall 1978 meeting agreed that the Association should put its weight behind these efforts. The following letter has been sent by our President to the Premier of Ontario.

Dear Premier Davis:

The Executive of the Canadian Botanical Association wishes to be numbered among those urging the preservation of the Oriskany Sandstone Formation. We are convinced that the Ontario Municipal Board made a wrong decision in allowing a quarrying permit to be granted for this site.

The Oriskany sandstone outcrop should be preserved because it is an unique geological formation with an assemblage of fossils found in no other part of Canada. It is an established habitat for the Black Rat Snake which, because of habitat destruction, has already disappeared from most of its original range in southern Ontario. It also supports growth of the only dry oak-hickory forest on sandstone in Ontario, and twenty-two species of rare flowering plants are found in the forest.

We understand that only 47 acres of the 500 acre site have been set aside as an 'environmental protection area'. Neither the oak-hickory forest nor the Black Rat Snake population can survive on such a small acerage; and the 'protection area' selected contains none of the rare plants.

In recent years, encroachment upon such natural areas by commercial developments has increased, thereby accelerating the irreversible reduction in species and habitat diversity. The negative effects of such changes upon the aesthetic quality of the environment are obvious. More subtle, but in the long run more dangerous, is the impact of erosion of gene pools on plant and animal evolution, an aspect which is already causing grave concern to plant breeders around the world.

We therefore urge that immediate steps be taken to preserve this unique ecological site and its associated flora and fauna.

Yours sincerely,
J.M. Shay
Professor and President
CBA

TOLUENE - The dangers when used in some Herbarium Mountants (Adhesives)

Toluene is a colourless liquid with a characteristic odour. It has a boiling point of 111°C and is immiscible with water. The highly flammable vapour is extremely harmful. One should avoid breathing the vapour and also avoid contact with the skin and the eyes. The threshold limit accepted by the American Conference of Governmental Hygienists (1976) is 100 ppm (375 mg per cubic meter of air). Toxic Effects: Inhalation of the vapour may cause headache, dizziness, nausea and mental confusion. The vapour and liquid irritate the eyes and mucous membranes and prolonged contact with the skin may cause dermatitis. Absorption through the skin and ingestion could cause poisoning. If toluene contains benzene as an impurity, the breathing of vapour over long periods may affect the blood.

Toluene is one of the principle components of the Archer formula for mounting herbarium plant specimens (see R.C. Rollins, 1955. Rhodora 57: 294-299). This mounting medium was adopted for use as the main adhesive in many herbaria throughout North America. Other materials that do not contain toluene should be employed in this type of work to avoid exposure to these fumes. The toxicity and potential health hazard of toluene warrant fast and efficient measures to curtail the use of adhesives containing it. All concentrated adhesives that contain volatile chemicals can have severe repercussions on health. Toluene is one of the worst. In a warm room or during the summer, toluene has a higher rate of evaporation and therefore a more acute effect on persons exposed to its fumes. The better the ventilation, the safer the working area for the preparation of botanical collections.

I have been an ardent, determined promoter in this public relations effort to deter herbarium curators and technicians from using adhesives containing toluene. Although co-operation and understanding of the danger were slow in the beginning, more and more curators are switching from the use of Archer's formula to some other less dangerous adhesive.

We should strive to find the least toxic adhesives and provide good ventilation in laboratories for all concerned. Our Canadian Museums Association conferences have made it possible to advise many herbarium curators across Canada of the dangers of chemical fumes and to make suggestions for safer working conditions. I know we have influenced the decision of several herbarium curators to discontinue adhesives containing toluene.

There should be a mandatory induction course on the hazards, toxicity and environmental conditions relating to chemicals, particularly toluene, for all newly employed supervisors, curators, and technicians who may come in contact with these fumes. Each employee should be made aware of the dangers involved before he or she uses this type of adhesive in their work.

Each person that I can prevent from breathing harmful fumes will add that much more to the time and effort that I have spent towards healthier, happier and more efficient working conditions. The old-time adage still applies: "An ounce of prevention is worth a pound of cure."

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YARROW, HERB OF ACHILLES. Achilles was a warrior of considerable renown and was often exposed to the risk of wounds, as were his tribesmen, the Myrmidons. In the primitive state of the crafts of medicine and surgery in those remote times, about 3000 years ago, even a scratch could fester and become fatal. In such circumstances, it was natural that a military commander should be interested in the treatment of wounds and campaign diseases like dysentery.

It is on record that, as a youth, Achilles was sent to the best school in Greece, that of Chiron the Centaur. It seems that this was the place to which most Greek kings sent their sons. The Centaurs were regarded as the experts in medical lore of the time and this tradition is recognized in the names of two plant genera. Centaurea (Knapweed) has a history as a wound herb; and Centaurium is one of the Gentians, a family all members of which have been used in medicine since ancient times.

Achilles himself, is remembered in the generic name of Yarrow, Achillea millefolium. The 'millefolium' element, meaning 'a thousand leaves', is thought to have prompted its use as a wound herb. In the days when Magic was

synonymous with Logic, the Doctrine of Signatures would dictate that a lacerated leaf would be an obvious and natural remedy for lacerated wounds, just as the flowers of Yarrow, with their fancied resemblance to eyes, still have their place in folk medicine for treating eye disorders and so people have given it the name of eyebright in parts of Lancashire and the West Riding.

The Doctrine of Signatures is, nowadays, discredited in orthodox medicine, but this is not to suggest that Yarrow is no good for the uses already mentioned. Like very many other plants, it contains both volatile oils and also an astringent principle. Volatile oils are often mild anaesthetics (e.g. clove-oil in toothache) and mild antiseptics; also a mild astringent (e.g. witch-hazel) would be quite useful for treating many kinds of wounds and also for a diarrhoea if not too severe.

People often do the right thing for the wrong reasons.

J. Thompson. Reprinted from The Vasculum, July 1978.

PUBLICATIONS

A Field Guide to Edible Wild Plants of Eastern and Central North America by Lee Peterson, published by Houghton Mifflin Co., Boston. Price $8.95.

Books on wild plant foods are usually more concerned with recipes than with field identification and it is to fill this need that the book has been written. The guide attempts to provide complete information for identifying, harvesting and preparing nearly 400 vascular plants, seaweeds, lichens and mushrooms that grow in the eastern half of North America. Scientific names are given and several floras are among the recommended books. There are 78 colour photographs and 109 black and white plants, each with several drawings.

In organization the book is rather complicated. It resembles "A field guide to wildflowers" by Peterson (the author's father) and McKenny, and most of the illustrations are from that book. But efforts to arrange plants in helpful groups by plant type, flower colour, leaf form, etc. are negated because there is no key to the groups. Description of plants, information on uses and season of availibility are excellent as are the drawings of each species on the facing page. Symbols indicating use are well thought out and easy to see. A number of poisonous plants that might be picked in error are symbolized by a skull and crossbones. In the appendices, plants are listed both by use and by season according to habitat. The colour photographs, also according to habitat, would be more useful in this section than in the general text.

One real concern with the book (and with many other popular guides) is the number of plants whose use is questionable, either because they are rare or because they are potentially toxic. Maybe the corms of Aplectrum hyemale are edible, but this orchid is on the rare and endangered list in Canada. Epigaea repens is mentioned three times although it is the floral emblem of Nova Scotia and is protected in many states. How toxic is Ledum groenlandicum? The dried leaves are frequently (and historically) recommended for making tea. Labrador tea is reputed to help coughs and sore throats, but overdoses may cause violent headaches or symptoms of intoxication, and a strong decoction is said to kill lice. Ledum species (in common with many other Ericaceae) have proved fatal to livestock. Again, young shoots of Impatiens capensis are perhaps safe to eat when cooked as a vegetable but animals avoid the raw plant because of its burning, acrid taste. Medicinally, jewelweed is considered as dangerous. In small amounts plants such as these may cause no harm, but if used regularly they are potentially dangerous. Unfortunately, publications on poisonous plants have been more concerned with their effect on animals than on humans.

My reaction on first reading was "slick" - a book written to impress an audience unfamiliar with wild plants but willing to eat them since it is the "in" thing to do. The author's intention was to produce a book that gave prominence to identification of edible plants. In that he has succeeded. Information on uses of plants is acceptable but adds little new to the subject. The book is not recommended for beginners because a number of questionable species are included. It should prove interesting to those who have some familiarity with uses of wild plants.

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Botanical Beachcombers and Explorers: Pioneers of the 19th Century in the Upper Great Lakes by Edward G. Voss. Contributions from the University of Michigan Herbarium Volume 13, Ann Arbor. viii + 100 pp. $4.00 U.S.

This is a history of botanical exploration and floristic studies in the basins of Lakes Huron, Michigan, and Superior through 1900. It exemplifies the way such histories should be written. Rather than merely chronicling names, dates, and collection localities, it illustrates the times in which the botanical collectors of each epoch worked, and discusses the stimuli for their efforts, the conditions, sometimes difficult or dangerous, under which they worked, and their interactions with one another. Nor are these explorers identified only in the context of their botanical work; their cultural and educational backgrounds, their achievements in other fields, and various interesting episodes from their lives are noted as well. This publication also provides guidelines for research in botanical history, both explicitly and implicitly through the many and diverse references cited.

Background information and anecdotal digressions are so incorporated that the reader does not feel that his time is wasted while the author goes off on tangents. Instead, they contribute to the readability as well as to the general value of this history, which throughout its pages reflects Dr. Voss's renowned facility with words. It is a pleasure to read. My only misgiving about its style concerns the flashbacks to specific expeditions after a person's career has been followed from beginning to end; these departures from chronological sequence can be momentarily confusing.

Concern for accuracy and detail is manifest in every chapter. Because Dr. Voss's greatest familiarity is with Michigan's botanical history, coverage of activities in that state is the most thorough. He admits that the Canadian portion of the Lake Huron basin "deserves a ful-

ler historical treatment" than he has provided. For example, the collections by James Macnab and Robert Brown from the vicinity of Goderich, studied and cited by Sir William Hooker, are not mentioned, although the work of John Goldie, John and Robert Bell, and John Macoun in the Lake Huron area is noted. An entire chapter, however, is devoted to the north shore of Lake Superior, with further recognition given to Canada's John Macoun. "The wedding of history and natural history," says Dr. Voss, "should lead to vigorous progeny." If we feel that Ontario's botanical history has not received adequate attention, let us join him in the hope that this publication will stimulate further research in this province.

James S. Pringle

Botanical Classifications by Lloyd H. Swift. A comparison of eight systems of angiosperm classification. Archon Books, Connecticut. 374 p. $15.00.

C'est avec un vif intérêt que j'ai pris connaissance de l'existence du livre de Swift dont je n'ai vu que très peu de comptes rendus. Le titre prometteur m'a incité à le commander immédiatement. Il faut dire que, depuis quelques décennies, la classification végétale a connu un développement exceptionnel. Les changements systématiques se sont succédés à un point tel qu'il est souvent difficile, pour celui qui ne travaille pas directement sur la classification des catégories taxonomiques supérieures, d'avoir une idée précise de la phylogénie d'un taxon donné et des différentes interprétations évolutionnistes qui s'y rapportent. Présentement, aucune structure conceptuelle précise ne nous permet de comparer entre eux les différents systèmes de classification; d'autant plus que leurs principes philosophiques et taxonomiques sont difficilement réductibles à un dénominateur commun. En ce sens, "Botanical Classifications" s'annonçait vraisemblablement comme une synthèse enrichissante, génératrice d'idées et de théories. Malheureusement, le livre n'a pas été écrit dans cette perspective.

L'analyse de Swift porte sur les systèmes de: Endlicher, Bentham et Hooker, Eichler, Engler et Prantl, Bessey, Hutchinson, Melchior, Cronquist. A propos de ces systèmes, il écrit: "The systems included are fairly representative of taxonomic thought at the time they appeared, and all of them are or have been prominent and influential" (p. 2). Je crois cette constation vraie seulement en partie. Elle donne l'impression, comme toute l'introduction d'ailleurs, que seuls les systèmes étudiés dans l'ouvrage ont une importance historique et/ou botanique. Sauf une allusion au système de Takhtajan, Swift ne mentionne aucun des autres système phylogéniques modernes; nous songeons ici à ceux de Thorne et de De Soō, par exemple, Le peu de place fait au système de Takhtajan est très surprenant, car, en systématique, la plupart des travaux récents en font mention. Et, n'a-t-il pas inspiré certains botanistes dans l'élaboration de leur propre système de classification? S'appuyant sur les textes de ses prédécesseurs et de ses contemporains, Takhtajan a formulé, lui aussi, comme Bessey et comme Hutchinson, plusieurs critères phylogéniques importants. Au Jardin botanique de Hambourg, on a même choisi l'un de ses dendogrammes phylogéniques comme plan de base de la collection systématique (voir l'article de J. Apel dans "Gärtnerisch-Botanischer Brief", v. 41, December 1973). Ainsi, une comparaison des systèmes de classification eût été probablement plus exhaustive si elle avait inclus celui du botaniste arménien.

Les huit systèmes analysés n'ont certes pas marqué également l'histoire de la systématique. A ce sujet, Swift semble confondre utilisation et influence. Par exemple, le système de Melchior, pourtant paru en 1964, n'a eu que peu d'influence sur la conception moderne de l'évolution des familles d'angoispermes, et ce, même si le Syllabus XII constitue un des livres botaniques les plus utiles, à cause de ses descriptions complètes, précises et concises.

Comme système de référence, Swift adopte celui de Fernald. Or, ceci n'apporte rien de neuf à notre compréhension de la systématique comparée, puisque Fernald a repris, en le modifiant légèrement, le système d'Engler et Prantl.

Bien entendu, dans un volume de 400 pages, on ne peut analyser en profondeur tous les systèmes de classification qui on vu le jour. Et si, pour une raison ou une autre, il faut sélectionner ceux que l'on croit être les plus importants, notre choix demeurera toujours tributaire de nos convictions personnelles. Arrivera-t-on jamais à s'entendre sur la question des principaux systèmes de classification. Chacun privilégie tel ou tel système, selon qu'il tient compte de l'utilisation, de l'influence ou de la validité scientifique. Ce dernier aspect demeurant le plus sujet à discussion, puisqu'il n'existe pas de critères indéniables sur lesquels s'appuie la vérité d'un système taxonomique. Pour remédier à cette situation, Swift aurait dû écrire un court historique des systèmes de classification en insistant sur leurs apports taxonomiques, tout en discutant brièvement leurs interrelations. De cette façon, il eût pu mettre en évidence le rôle joué par certains systèmes non mentionnés dans l'ouvrage.

La comparaison entre les huit systèmes porte sur les sous-classes, les ordres, les familles et, dans certains cas, les genres. Chaque famille est caractérisée par une formule florale fort compliquée, accompagnée d'une énumération des principales particularités de la fleur et du fruit. A vrai dire, l'énumération reprend, sous forme de prose, ce qui est contenu dans la formule florale. Swift aurait eu avantage à se limiter à la formule florale traditionnelle, certainement plus didactique que la sienne, tout en donnant une description concise de la famille. De plus, il devient difficile de se référer à ce livre pour acquérir une vue d'ensemble des catégories taxonomiques supérieures, car l'auteur ne tient pas toujours compte de toutes les familles dans un ordre, s'étant apparamment limité aux familles présentes dans l'aire géographique couverte par le "Gray's Manuel".

Dans son étude, Swift ne s'interroge presque pas sur le ou les caractères utilisés pour la classification d'un ordre ou d'une famille. Pourtant, il y aurait eu là matière à discussion! Comment la valeur des caractères varie-t-elle d'un auteur à l'autre et d'un taxon à l'autre? Voilà une question qui

est essentielle dans une étude bibliographique comparative de la classification végétale. Malheureusement, il n'aborde pas ce problème fondamental et sa comparaison demeure statique et linéaire. Par surcroît, le type des illustrations employées n'est pas très bien adapté au sujet traité. Empruntées à l'"Illustrated Flora of the Northern United States", celles-ci relèvent plus de la floristique que de la systématique proprement dite.

Les notes sur l'origine de certains noms botaniques sont très intéressantes et traitent d'un aspect culturel souvent délaissé dans les études de ce genre.

Du point de vue de la présentation, l'auteur ne souligne pas systématiquement les noms latins, comme il se devrait dans un texte dactylographié; il souligne pour insister sur un terme particulier et non pour indiquer les mots qui, normalement, dans un texte imprimé, sont en italiques. Ainsi, il n'y a pas de différence typographique entre les noms anglais et les noms latins.

Swift s'est donc attaqué, avec plus ou moins de succès, à un sujet complexe qui demeure encore ouvert à toutes les études. Mais sera-t-il jamais clos? La systématique ne se laisse pas saisir facilement et encore moins les prémisses de ceux qui la font. "Botanical Classifications" est un des premiers pas vers une étude globale des systèmes de classification, étude qui, souhaitons-le, verra le jour.

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The Flora of Canada by H.J. Scoggan, published by the National Museums of Canada as National Museum of Natural Sciences Publications in Botany, No. 7. 4 parts (1-3 published in 1978). Price $131.00 complete.

Not since W.J. Hooker's Flora Boreali-Americanae (1829-1845) has a descriptive flora been published dealing specifically with Canada and covering this country in its entirety. The appearance this year of H.J. Scoggan's The Flora of Canada is therefore an event of major importance in the history of Canadian florsitics and plant taxonomy.

This flora lists all vascular plants known to its author or reported to occur without cultivation in Canada, Alaska, Greenland, and St-Pierre et Miquelon -- a total, according to the abstract, of 4,153 species. Introductory material occupies the whole of Part 1, making The Flora of Canada a valuable reference in some areas of ecology and phytogeography as well as in floristics and taxonomy. The floristic regions of Canada are described in detail, listing not only the dominants of climax vegetation but also many of the successional species, aquatics, and herbaceous components of forest vegetation. The discussion of factors affecting the distribution of species should prove especially useful, having few counterparts so concisely and conveniently presented. The extensive treatment of climatic factors is followed by a summary of the Pleistocene glacial history of Canada, to which a somewhat briefer consideration of edaphic factors is linked. There is a sizeable and, by and large, commendably grammatical glossary (although under "monoecious" it is not clear that "unisexual" applies to the flowers rather than to the plant). I regret the absence of material on the history of floristics in Canada, although by the 1970's this may have become too unwieldy a subject to review in the introduction to a flora.

The sequence of families follows the familiar Englerian system. Genera and species are listed alphabetically; individual species in large genera or families are thus easily located without use of the index, but closely related taxa may be widely separated, taxa sought under names rejected by Scoggan are less readily found, and tribal and sectional groupings are eliminated altogether, except occasionally in the keys.

Descriptions of species are confined to the keys, and there are no illustrations. The quality of the keys can only be assessed after they have been extensively used, especially by beginners, to identify unknown specimens in many genera from all parts of Canada. They are evidently largely original, and are strictly dichotomous. Many couplets deal with several traits; this is a valuable feature when specimens are less than ideal or when a decision tentatively based on one trait requires reinforcement. Many persons will be pleased that the key to families does not require dissection of ovaries. It appears, however, that some keys will at times prove impractical because they require too many stages of development. The key to families, for example, depends to a surprising extent on characters of the mature fruit. Cruciferae may be difficult to key without both flowers and fruit, and portions of the key to Salix species require mature foliage while other couplets require the quickly caducous bracts of precocious catkins. There are occasional lapses in parallels, e.g., "Fruit a capsule; ovary superior" vs. "Fruit not a capsule; flowers regular."

Distribution, with habitats, is given in considerable detail for Canada, especially as to limits and outlying stations, and in abbreviated general terms for ranges beyond Canada. Distribution maps are cited. The author investigated numerous questionable reports, some of which are now documented and others demonstrated to be erroneous. Many, however, were not resolved; these are noted, so that other persons may be induced to investigate these reports further.

With the renewed attention given to life-form spectra in recent years, the designation of the life-forms of all native species and their tabulation for the respective climatic zones are welcome features that should stimulate further studies.

The author has called his species-concepts "conservative". By eschewing both extremes of splitting and lumping that have been advocated in Canada as elsewhere in recent years he has, I believe, adopted species-concepts that will in the main be well received by the majority of Canadian taxonomists. His discussions of problems in species delimitations, lucidly and even amusingly written, have already found use in my university classes. Most of us, when we differ with this flora at all, will probably feel that species are more often too broadly circumscribed than too narrowly. To me, the broad species-concepts are most conspicuous among ferns, where the treatments of Botrychium and Dryopteris, especially, are much at variance with those in nearly all recent pteridological literature. However, considering my difficulties in distinguishing between Botrychium multifidum and

B. oneidense, for example, I must respect an honest opinion that possibly some of us do recognize an impractical number of species. Occasionally one finds the opposite situation, as in the acceptance of both Viola pensylvanica and V. pubescens, or a few discredited segregates in Amelanchier.

One of the most significant potential advantages of a new flora for Canada is the updating of the nomenclature and classification from that of the eighth edition of Gray's Manual of Botany and The New Britton and Brown Illustrated Flora, works which, though written about 30 years ago, are still followed in many Canadian floristic and ecological studies. In nomenclature, I am pleased to see the adoption of such unambiguously correct names as Eleocharis erythropoda Steud. and Hemerocallis lilioasphodelus L. Likewise, in taxonomy, it is good to see Thelypteris accepted as a genus distinct from Dryopteris (now assigned to different families by most pteridologists) and Gentianella separated from Gentiana (the former now widely regarded as being more closely related to several other genera). Conversely, I am pleased that such further segregates as Parathelypteris and Ciminalis have not been recognized, since their taxonomic acceptability remains at most highly controversial.

Although the updating of classification and nomenclature that has been done is a significant asset of this flora, the extent to which it falls short of what could and should have been done is my greatest disappointment. According to the author, research for this publication ceased in June 1972, but it obviously began a drastic decline much earlier. The literature citations indicate a fairly thorough survey of North American taxonomic literature through 1958, but from 1959 through 1967 coverage is more erratic, largely being restricted to works by Canadian authors and a few of the more highly publicized monographs by U.S. authors. No revisionary or nomenclatural studies, and only a few phytogeographic works are cited from 1968-1971, and, except for the latest revision of Index Herbariorum, no later works are cited at all. Nomenclatural instability is unjustifiably prolonged, for example, by the perpetuation of the name Gerardia; the last-ditch attempts to conserve this name over Agalinis were defeated in 1962. The multiplication sign is misplaced in all binomials for hybrids, through adherence to Gray's Manual, ed. 8, although its corrected position has been established in the International Code of Botanical Nomenclature since 1952, and connecting vowels in many epithets likewise fail to conform to current rules. My revision of Gentiana (1967), for example, got in "under the wire", but there is no mention, even in synonymy, of my typification of names in Clematis (1971). Coverage of British and European literature seems to have been virtually nonexistent, with the result that the many nomenclatural and revisionary studies published in preparation for the Flora Europea (1964-present) were missed. The many discrepancies in the nomenclature and classification of circumboreal and naturalized taxa between the respected, standard European flora and this more recently published but much less up-to-date Canadian flora are likely to cause much confusion and annoyance. Discrepancies between The Flora of Canada and the similarly up-to-date Vascular Plants of British Columbia will cause additional problems in western Canada. Obsolescence is further manifested in the omission of some relatively recently naturalized weedy species reported during the past decade.

Concern with economy is evident, as in the narrow margins, but, with its reasonably opaque paper, clear type, and justified margins, The Flora of Canada is an attractive set of volumes. Typographic errors are very few.

In summary, because no list of Canadian plants has ever approached The Flora of Canada in thoroughness, detail, and documentation, this flora is an absolutely essential reference for anyone doing floristic or phytogeographic research in Canada. Moreover, despite its nomenclatural shortcomings, for much of this country it is definitely superior as a standard to be followed than the works now so used. We should, however, continue to insist on adequate Canadian participation in the reactivated Flora North America project, and hope that a modern continent-wide flora in a comparable convenient form will result.

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Wild Coffee and Tea Substitutes of Canada: Edible Wild Plants of Canada #2, Nancy Turner and Adam Szczawinski, National Museum of Natural Sciences/National Museums of Canada, 1978. $6.95, 111 pp.

Wild Coffee and Tea Substitutes of Canada is the second book in a series of four on edible wild plants of Canada to be published by the National Museums of Canada.

One of the stated purposes of this work is to provide instructions for collecting and preparing these teas. The size, 8 1/4" x 8", and shape of the book, however, may limit its usefulness as a field guide. The use of a metal spiral binding allows for quick page turning, and flat or easily turned back pages.

The authors have compiled varied historical and antidotal information on coffee and tea, as well as on wild tea and coffee substitutes. A bibliography is provided at the back of the book, but statements are not referenced in the text. Statements such as "it would be important to note that the United States consumes over half of the world's coffee production", p. 12, and "half the human race drinks tea daily or occasionally", p. 14, would benefit the serious student and/or interested reader more if referenced.

The introduction portion of the book includes sections on the need for coffee and tea substitutes, the history of coffee, the history of tea, the history of tea and coffee substitutes, how to gather and prepare tea and coffee substitutes, necessary cautions, and a section on scientific names and groupings used in the work.

The section on need for coffee and tea substitutes begins with information on the economics of coffee drinking, and leads into the comparative caffeine content of coffee and tea (here again references would be of use as there is controversy in the literature regarding caffeine levels of these two popular beverages (1). A few words are given about the health effect of caffeine. As the layout of the text in this book allows for much empty space, more information could have been provided on the health effects of caffeine ingestion in this section, along with information on the caffeine content of wild teas and coffee substitutes. The authors note that a standard cup of coffee may contain 100 mg caffeine whereas tea (usually brewed

in weaker solution) may contain 30-60 mg. Cup size is not defined. It would be well to call to the attention of the readers that dosages of 200 mg caffeine (2 cups) daily is considered the level that can produce pharmacological action of clinical significance (2) and that physiological and psychological dependence on caffeine is associated with intake of 370-650 mg caffeine daily (3 to 6 cups)(3).

Also of potential interest to readers is the various components of tea that have been shown to be deleterious to health besides caffeine. Especially of concern, when tea ingestion is high, is tannic acid, a potent anti-thiamine factor, oxalic acid and manganese as inhibitors of iron and calcium absorption (4). Components of coffee have also been identified with anti-thiamine factors (5).

Mention is made in the text of decaffeinated coffee preparations containing chemicals used in decaffeination that affect some people more than caffeine; no mention is made of the identity of these chemicals, symptoms of their ingestion or reference source for the statement.

Missing in the otherwise interesting and informative section (sans references) on the history of tea is information regarding the use of tea by Canadian native peoples, which today is considered to be a traditional beverage (4). Information on when tea was first traded for furs by the Hudson Bay Company would give Canadian content to this section.

The section on history of coffee and tea substitutes might be an appropriate section to introduce information on the valuable contribution that wild teas make to Vitamin C content of the diet, and to a lesser extent, Vitamin A content. Only one sentence at the end of this section refers to the value of evergreen teas as an anti-scurvy drink. Many edible wild plants contain high concentrations of ascorbic acid (6). It has recently been noted that the anti-thiamine properties of tannic acid are lessened in the presence of Vitamin C[7]). The Vitamin C content of oriental teas is minimal.

Also of interest to Canadian readers is the information that there is a decrease in alkaloid content of plants from south to north, and therefore the caffeine content of many northern wild tea and coffee substitutes is low to non-existent, (8,9). Also of interest is that the Vitamin C content of vegetation increases from south to north (10).

The "A Necessary Caution" section of this work is in reality caution about several aspects of use of edible wild vegetation. Caution is given regarding identification of edible vegetation, picking edible plants from areas of pesticide or other environmental contamination; concern regarding potential risks to health from high ingestion of some of the wild tea and coffee substitutes; and concern for harming the plant and/or tree.

The major part of this book is devoted to a section on examples of wild tea and coffee substitutes. This section is divided into cone-bearing plants and flowering plants. The latter are arranged alphabetically by scientific family names within the two major divisions of flowering plants.

Information for each plant cited in this section includes: how to recognize, where to find, how to use, recipes (care has been given to list ingredients in metric and non-metric units), additional information for your interest, and a warning section (examples of similar plants that may be toxic, and concern about excessive intake).

A combination of black and white line drawings and full colour photos are used as illustration and identification aids. Coloured line drawings may be more helpful in identification for each plant cited than the combination used. The coloured photographs, although artistically pleasing, are often greatly enlarged and may be more confusing than helpful for purposes of plant identification. Where coloured photographs are used there are no line drawings.

Generic names for line drawings of plants appear at the bottom of the page, sometimes three inches away from the illustration. There is no consistency in placement of generic names for photographs; sometimes these are placed on the back of the photo, sometimes on the page opposite.

Common poisonous plants; line drawings and information on how to recognize them, would be a useful addition to this book.

These criticisms, however, should not detract from a basically informative and attractive work which would be a good addition to a library of books on wild edible plants.

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Revue Canadiennne de Biologie

Il y aura bientôt quarante ans que la Revue canadienne de biologie fut fondée par quelques éminents biologistes canadiens-français en vue de diffuser les résultats de leurs travaux de recherche. Non seulement la Revue est bilingue depuis les tout débuts, mais encore elle a at-

tiré plusieurs collaborateurs de l'étranger, tout en demeurant un centre d'attraction pour les travaux émanant des laboratoires canadiens et, surtout, québécois. En fait, les trois quarts ou presque des articles publiés dans la Revue proviennent d'institutions québécoises.

Notre politique éditoriale consiste à publier des articles originaux, des notes et des articles de revues dans les domaines de la biologie et médecine expérimentales, notamment la morphologie fonctionnelle, la physiologie sensorielle et environnementale. Les nouvelles parutions (livres scientifiques, monographies) reçues des différentes maisons d'édition sont énumérées et, en autant que l'espace le permet, analysées dans chaque numéro de la Revue. La plupart des numéros contiennent un article de revue préparé ou non à la requête expresse du comité éditorial. Certains numéros spéciaux, consacrés aux progrès récents dans une discipline proche des préoccupations de la Revue, paraîtront régulièrement.

Le calibre international de la Revue n'est pas reflété uniquement par les contributions de laboratoires à l'étranger, mais aussi par la liste des membres du comité éditorial. La Revue offre aux individus une souscription à taux réduit et encourage la soumission d'articles provenant de toute la communauté scientifique. Les notes sont publiées en deça de trois mois, et les articles originaux jugés acceptables paraissent environ six mois après réception. La table des matières de la Revue est citée dans les Current Contents et les abrégés des articles paraissent dans les Biological Abstracts, Chemical Abstracts, Index Medicus, etc. On peut considérer qu'environ 50% du texte de chaque numéro est en anglais, et tous les articles et notes sont accompagnés d'abrégés en anglais et en français. Grâce à des subventions du ministère de l'Education du Québec et du Conseil national de recherches du Canada, les auteurs d'articles de longueur normale n'ont pas à défrayer les coûts de la mise en page, et cent tirés à part sans couverture leur sont fournis sans frais.

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