THE CANADIAN BOTANICAL ASSOCIATION

BULLETIN

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MARY ELLIOTT

It is with regret we announce the death of Mary E. Elliott, immediate past-president of the Canadian Botanical Association. She and her mother died from injuries they sustained under tragic circumstances at their Ottawa residence on September 10th, 1976.

Mary was an early member of CBA/ABC and held office as secretary (1972-73), vice-president (1974-75) and president (1975-76). As president she was also a member of the Biological Council of Canada. In all her activities with the Association, she worked enthusiastically to bring the tasks of office to successful completion. The Association has lost a dedicated and loyal worker.

Employed for the past 28 years with Agriculture Canada, Mary had recently taken on the duties of Curator of the National Mycological Herbarium, Biosystematics Research Institute. She was known internationally for her studies in the Sclerotiniaceae. Her most recent investigations involved the genera Peziza, Ciboria, Ciborinia, and Streptotinia, their taxonomy, life- history and cultural characters.

As a member of the Canadian Phytopathological Society and of the Mycological Society of America, Mary was an active participant in their meetings whenever the opportunity arose. Fellow members of these societies will miss her attendance on field excursions and they will miss the person who so often surprised them with her knowledge of the history of the host city or area.

J.A. Parmelee

A fuller appreciation will appear in the next issue of the Bulletin. - Ed.

CBA/ABC ANNUAL MEETING 1976

'Natural areas' was the theme of this year's annual meeting at Bishop's University in Lennoxville, Quebec. At a time when the fate of our natural areas is being determined by many groups, often with conflicting values, it was necessary that our Association voice opinions on these issues. The French word for natural areas, 'les refuges' served to convey more accurately the feeling that these lands are islands in a sea of vigorous human activity.

To favour the preservation of natural areas it is necessary to develop a framework of land use that considers more than economic reasons. As a result it was Dr. Rowe's claim, in a philosophical tone, that aesthetics must be involved and a realigned set of values be established. Dr. Bradshaw's presence served as a reminder that our definition of natural areas should not be too restrictive. With examples from Britain and Australia, he showed that succession can be started on lands severely disturbed by mining, flooding, etc. and that with time the area may well appear 'natural'. Indeed such lands might possess a floristic composition similar to the earlier vegetation. Biologists as a whole have not been wholly successful in arguing the legal aspects of land use and the social-economic features of the natural area. Dr. Peterson argued that some pitfalls are being overcome, although one felt that the rate of land protection is much too slow. The theme of the meeting concluded with examples of the natural areas that have been set aside by Quebec and British Columbia. Dr. Lemieux again stressed the importance of maintaining an appreciation of the heritage of our land. It was emphasized that earlier arguments presented to governments based on the need for conservation and scientific research in natural areas unfortunately has encouraged politicians to conclude that the balance between man and nature no longer exists. Dr. Lemieux also was concerned that the protection of lands requires funds for which scientists appear to be ill-suited to compete. Dr. Krajina's presentation demonstrated what wonderful areas are protected by the Ecological Reserves Act of British Columbia. He admonished us to work relentlessly to convince all relevant Departments of Provincial Governments of the importance of ecological reserves. Many arguments must be used to appraise citizenry and politician of the necessity to save such lands. It was obvious that Dr. Krajina's pragmatic approach has been emininently successful.

During one of the evenings we were privileged to view the Orchidaceae of Canada in a beautifully illustrated lecture by Dr. D.R. Gunn. The submitted papers this year were accented by a student paper competition. A number of presentations dealt with aspects of natural areas and this served to reinforce the theme of the meeting. Our traditional field trips were arranged to visit a peat bog, a serpentine community and asbestos mine, and a mushroom-growing industry. These trips afforded an opportunity to see the unique Eastern Townships of Quebec.

Guests at the banquet were rewarded with a delightful and humorous presentation by Dr. Jefferis, Emeritus Professor in Education and Classics at Bishop's, as he extolled the virtues of "Better Homes and Gardens".

Members left with the feeling that they had attended a well organized and rewarding meeting and a resolve to meet again next year at the 12th annual meeting, this time in Winnipeg.

Wayne Hawthorn

(Additional reports on our activities at this year's annual meeting will appear in the next issue of the Bulletin - Ed.)

PRESIDENTIAL ADDRESS AND PRESENTATION OF A GEORGE LAWSON MEDAL

Ladies and gentlemen, it is an honour to be with you tonight. I wish to take this opportunity to say a few words to you this evening. When I heard former Presidents of our Association at the Annual banquets give their entertaining, eloquent and thoughtful addresses never did I think that I would be standing here talking to you.

Our Past Presidents have been from many disciplines, Dr. Ludwig, our first President, was a plant pathologist, another was a phycologist, yet another an ecologist, and now a mycologist. However, we are all botanists and as botanists we encompass many fields, and many problems, but then problems challenge us.

Dr. Steeves in his Presidential Address mentioned many of the problems and asked, "What is the role of the Canadian Botanical Association?". Dr. Morton in the October 1975 issue of the Bulletin rephrased this--"Whither the CBA/ABC?". Many of you accepted the challenge and took time to respond to this question by writing to the editor and your executive, and many of you discussed it among yourselves and with your executive.

I believe in this way that you have shown your concern and because of your concern the CBA/ABC will flourish. After listening to Dr. Ritchie's paper, "A subarctic natural area--a documented case, the Campbell/Dolomite Uplands near Inuvick, N.W.T." you voiced your feelings, your convictions on this important subject by asking your executive to write to the proper authorities expressing the concern of this meeting.

An Annual Meeting gives us all an opportunity to discuss the issues which concern us; an annual meeting brings us together and makes us better acquainted not only with each other, but with each other's research; an annual meeting gives us an opportunity to exchange ideas; to renew our enthusiasm for botany; to renew our feelings that it is an interesting and stimulating profession and hobby. This hobby, this profession is a field which has many exciting projects for us to tackle, and to solve--a field which is a challenge.

At this point in our program it is my very pleasant task to present the George Lawson Medal. As most of you know, the George Lawson Medal in Botany was established by the Canadian Botanical Association/L'Association Botanique du Canada as a means of providing "--a collective, formal expression of the admiration and respect of botanists in Canada for the excellence of the contribution of an individual to Canadian Botany--".

Presentation of a George Lawson Medal to Dr. D.B.O. Savile by our President Miss Mary Elliott

(from left to right A.N. Langford, M.E. Elliott, D.B.O. Savile, J.A. Poulin. Photograph courtesy of the Sherbrooke Record.)

I see Dr. Dore sitting in the audience and I have taken my facts about George Lawson from a paper by Dr. Rousseau and Dr. Dore, published in 1964 by the Royal Society of Canada.

George Lawson was born in Scotland and received his early training at Edinburgh University and at the age of 24 gave a Presidential Address to the Geological Society on, "Floral Changes of the Present Day in Relation to Past Changes of the Earth's Flora". A year after he received his Ph.D. in Germany, he accepted the position of Professor of Chemistry and Natural History at Queen's College, Kingston. He thus became, in 1858, the first professional botanist in Canada. In December 1860, the first meeting of The Botanical Society of Canada was held in his classroom. In January 1861, the 92 members present at the second meeting paid their $2.00 fee. Also in 1861 he established at Kingston the first Botanical Garden (about 7 acres) in Canada. In 1863 Dr. Lawson was installed at Dalhousie University, Halifax as Professor of Chemistry and Natural History. Although his interest lay in Agriculture and Economic Botany as shown by his numerous publications, he had many accomplishments. For example, he was an editor for 12 years of the Nova Scotia Journal of Agriculture. In 1882 he became a founding member of the Royal Society of Canada and under its auspices he proposed the founding of a new Botanical Club of Canada. This Club functioned until 1910, fifteen years after Lawson's death in November 1895.

It gives me great pleasure to announce that the George Lawson Medal is being awarded this year to Douglas Barton Osborne Savile. Dr. Savile was born in Dublin, Ireland, lived in Africa for a few years, received his B.S.A. and M.Sc. degrees in Plant Pathology from McGill University. For a short time he worked at the Central Experimental Farm, Ottawa, before continuing his studies at the University of Michigan. There, he received his Ph.D. in Botany and Mycology. His doctorate thesis, published in 1939 was entitled, "Nuclear structure and behavior in species of Uredinales".

In 1939 he returned to Ottawa and earned his commission in the R.C.A.F. Near the end of the war he accepted a position with Agriculture Canada in the Division of Botany and Plant Pathology where he spent most of his distinguished professional career. Although retired since 1974, he actively continues his research as a research associate (emeritus) in the Biosystematics Research Institute (Ottawa).

Dr. Savile is internationally recognized for his outstanding research on the taxonomy of the rust fungi (Uredinales) and their host plants. He is internationally recognized for his publications on the co-evolution of these fungi with their hosts, and noted for his concepts of fungus phylogeny. He has an international reputation for his work on arctic angiosperms. His arctic studies with his interest in arctic flora culminated in his paper, "Arctic adaptations in plants". He has to date over one hundred and seventy-five publications including descriptions of numerous new species and taxa. The titles of his papers illustrate that he is not only a mycologist,

plant pathologist and phanerogamic botanist, but also an alert naturalist. In an age of specialization he has been remarkable for the diversity of his research interests. His broad range of interests include ornithology, entomology, meteorology, climatology and aerodynamics of bird flight. Much of his intensive field work in many regions of Canada from Newfoundland to the Queen Charlotte Islands of British Columbia to Lake Hazen, Ellesmere Island, Northwest Territories is the basis of his broad knowledge, extensive studies and scientific publications.

To quote one of the members of the Awards Committee, "In making this award to Dr. Savile, The Canadian Botanical Association/L'Association Botanique du Canada will be honouring the memory of George Lawson in a most appropriate manner".

Mary E. Elliott
President

THE PHOTO SALON

This year we held our second Photo Salon at the Annual Meetings. Of the many excellent photographs submitted the judges made awards to the following people for entries of particular merit:

Class 1 Monochrome Prints (Macro)
1st A.P. Lightfoot
2nd A.P. Lightfoot

Class 2 Colour Prints (Macro)
1st D.R. Gunn
2nd A. Ceska
3rd D.R. Gunn
Honourable Mention: I. Hall

Class 3 Photomicrographs
1st J. McLaughlin
2nd J. McLaughlin
3rd R.J. Adams

Class 4 Colour Slides
1st S.L. Iverson
2nd J.R. Dugle
3rd D.R. Gunn
Honourable Mention: L. Janus and B.N. Turner

BY-LAWS - AMENDMENT

to By-law 2 - Nomination and Election of Officers. The Executive Committee at its last meeting held in Lennoxville agreed on the following changes to this by-law. Replace sections a) and b) with the following:

"(a) A call for nominations shall be made at the Annual Business Meeting of the Association the year prior to that in which the nominees will serve. A call for nominations shall also appear in the Canadian Botanical Association Bulletin immediately following the Annual Business Meeting. All nominations must be made to the Secretary by November 30th. Nominations must be signed by not less than six regular members in good standing and be returned to the Secretary at least 16 weeks prior"....(etc. to end of section (a), then add) - "If the membership does not provide a sufficient number of nominations by the deadline of November 30th, then it shall be the duty of the Nominating Committee to complete the slate of nominations".

"(b) The Nominating Committee shall be composed of three members in good standing. The term of appointment for each member of the Committee shall be for three years. Their appointments shall be made by the Executive Committee in such a way that only one member of the Nominating Committee will be retired each year. In a given year, one member will be appointed by the Executive Committee for a three year term. This appointment is to be made within 4 weeks of the previous Annual Business Meeting."

The reason for these changes relate to the intolerable difficulties and expenses which have arisen on recent occasions when too few nominations have been received by the Nominating Committee which has then had to generate further nominations at short notice.

STATEMENT OF FINANCIAL STANDING - 1975-76

Balance of Funds - 1974-75		3798.72
Receipts:		
Membership dues:		
Full 2128.00		
Retired .. 36.00		
Student .. 181.00		
Arrears .. 57.00		
Advance .. 64.00		
	2466.00	2466.00
Can. J. Bot. Subscriptions .	2332.00	
Biological Council Fees	663.00	
Refund - B.E.P. Meeting	1087.59	
Refund - London Meeting	188.95	
Reprints	172.00	
Miscellaneous	24.70	
	6934.24	6934.24
		10732.96
Expenditures:		
Bulletin Expenses	1487.06	
Can. J. Bot. Subscriptions .	2496.00	
Biological Council Fees	702.00	
Travel	887.55	
Postage/Stationery	76.79	
Medal Expenses	345.56	
B.E.P. Programs	308.00	
Lennoxville Meeting advance	500.00	
Bank Charges	7.89	
Miscellaneous	55.12	
	6865.97	6865.97
Balance of Funds - 1975-76		3866.99

J.F. Gerrath - Treasurer

To the best of our knowledge this represents an accurate statement of the finances of the CBA/ABC.

D.W. Smith and Hugh M. Dale, Auditors

NOMINATION OF OFFICERS FOR THE CBA/ABC

This is a formal call for nominations to the Executive Committee for 1977-78.

By-law 2A of the constitution says, in part:

"Nominations must be signed by not less than six regular members in good standing, and must be returned to the secretary at least sixteen weeks prior to the Annual Business Meeting. The proposed office for each nominee shall be clearly indicated."

"Chaque mise en nomination doit porter la signature d'au moins six membres réguliers et en règle, et être retournee au secrétaire au moins seize semaines avant l'assemblée générale annuelle. Chaque soumission doit stipuler clairement pour quelle fonction le candidat est proposé."

By-law 2C says:

"All nominations must be accompanied by the written consent of the nominees, who shall be regular members in good standing."

"Toute nomination doit être accompagnée du consentement écrit de la personne nommée, laquelle doit être membre régulier et en règle."

Positions to be filled this year: 1.

1. President-elect
2. Vice-President
3. Treasurer
4. 3 Directors (Continuing Directors are Miss Julie Hrapko, Dr. Michel Famelart and Dr. Gordon Thomas)

Will you please return your nominations by November 30th, 1976 to

Dr. J. Dugle
Secretary, CBA/ABC
Environmental Research
Whiteshell Nuclear Research Institute
Pinawa, Manitoba
ROE 1LO

NOMINATIONS FOR THE GEORGE LAWSON MEDAL

Each year the C.B.A./A.B.C. 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 and appropriate documentation including biographical information, list of publications and letters by others who support the nomination. Nominations should be sent to the Chairman of the Awards Committee - Dr. W.N. Stewart, Department of Botany, The University of Alberta, Edmonton, Alberta T6G 2E9 as soon as possible.

REPORTS FROM THE SECTIONS

The General Section

Seventeen members of the General Section attended a business meeting on June 8, 1976. Dr. Alistair MacDonald of Lakehead University and Dr. Peter Neumann of the Université de Montréal were elected as new directors to retire in 1979. In accordance with General Section Statutes, the 6 directors will select a chairperson and secretary from amongst themselves.

There was discussion of the proposals made by Dr. Jack Maze of U.B.C. concerning the formation of a new structural section which would meet in alternate years and have an informal organization. Members present at the meeting voted to continue meeting every year with the CBA/ABC and to retain the current administrative organization of six directors. However, a proposal for changing the name of the "General Section" to "Structural Section" was passed at the meeting and will be put to a vote by the membership of the General Section during the coming year.

There was agreement that the quality of papers in the Morphology Sessions was high this year and a number of suggestions for future meetings will be forwarded to the organizers of next year's meetings in Winnipeg.

N.G. Dengler

THE AGRICULTURAL INSTITUTE OF CANADA

The 56th Annual Conference was held on the campus of the Saint Mary's University in Halifax from July 4th to 8th. Ten affiliated societies were also meeting under the aegis of the Institute. The theme of the conference was RESOURCES FOR FOOD and the first day was devoted to a plenary session with key addresses organized by the AIC. Many aspects that contribute to our efficient resource utilization were presented: Land Availability: Uses and Production by J.S. Clark; Canada's Sea Resources for Food by I.H. Langlands; Energy by P.D. McTaggart-Cowan; Research and Education by H.F. MacRae; Government Policy by S.W. Borland; and the Attitude of People by Glen Flatten. While no specific presentation was made concerning climate, the limiting quality of this element was suggested by Clark and further developed during discussion, particularly by McTaggart-Cowan. He warned that projection for potential of future supplies should not be calculated from figures obtained during the last few decades when climate was exceptionally stable and favourable, but from the capability of crops under stress as experienced during the worst temperature and moisture conditions of

the last century. The figures of I.H. Langlands, Vice President of National Sea Products, Halifax, gave completely new vistas of this food resource to the audience: the sea does not have as great a potential as food resource as we were so long led to believe. When the type of operation required to harvest the sea (trawlers, nets, acreage of ground covered, etc.) is considered, the average yield of an acre of the ocean would be about 33 lbs., which represents only about 13 lbs. of fillets. This in comparison with a yield of 1860 lbs. of wheat or 4760 lbs. of corn per acre of land. Langlands pointed out the anomaly of the ever increasing outlays to harvest the sea with decreasing returns. Costing is also a major concern when aquaculture or the procurement of drugs and chemicals (with the exception of chitin) is considered. Thus while general indications are that a reasonable fish harvest can be re-established under proper management, the sea is not the anticipated panacea for feeding future populations.

Sessions of the individual societies discussed many aspects relating to agriculture. Some of these were highly technical, such as the fine structure of Mink Spermatozoa, while others were concerned with practical aspects, i.e. those associated with mechanical harvesting of diverse crops (lowbush blueberries, peaches, vegetables, etc.). Of particular interest to botanists were topics of the Society of Horticultural Science and of the Canadian Phytopathological Society. These dealt primarily with aspects of growth and other reactions to environment (including fruit storage) and the behaviour of various pathogens and breeding potential for disease resistance in crops respectively. For those that still associate edibility with a soft or at least millable structure, the use of poplar wood as food for calves might come as a surprise. Yet work on this project has been successfully pursued at the Kemptville, Ontario Agricultural School for several years.

The attendance at the meeting surpassed all expectations: 1200 persons attended instead of the anticipated 800, yet the busy local committees remained undaunted. I have heard great praise of the various programs arranged for wives, teens and small children. An interesting innovation was the free flowing Nova Scotia apple juice (300 gallons) and cranberry juice (60 gallons) that was much preferred to hot coffee during the exceptionally beautiful and warm weather with which we were blessed.

E.E. Gaertner

SOUTH PACIFIC PLANTS - the Josephine E. Tilden collection, First and Second Series (Algae)

Through the generosity of the University of Minnesota the entire algal collections from the above two series have come into my possession for curation and eventual distribution. Unlike other plant groups, the algae were never distributed as intended, although some may be found incidentally in a number of herbaria, and some are referred to in formal publications. The collections, made under the direction of the late Josephine E. Tilden, were gathered during two expeditions, the first in the early 1900's and the second in 1934-1935. While principally marine species are represented, some freshwater species are included. Tilden and her assistants concentrated mainly on Australia and New Zealand, but specimens were also obtained from Sri Lanka, India and elsewhere.

A limited number of Sets of these algae are being offered strictly on an exchange basis, by prior arrangement, and at irregular intervals. While some major herbaria are now on the list, further requests for exchange are invited. The first issue of ca 150 numbers (of an expected total of about 800) will be available for distribution in late 1976.

Requests should be addressed to:- Dr. G. Robin South, Curator, Phycological Herbarium, Department of Biology, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1C 5S7.

PUBLICATIONS

Flora Neotropica - taxonomic monographs by leading authorities on groups of plants occurring in the New World Tropics. The first 17 volumes, listed below, are available from: The Publications Office, The New York Botanical Gardens, Bronx, New York, 10458, U.S.A.

Monograph 1	Cowan, Richard S. Swartzia (Leguminosae)	$14.95
Monograph 2	Cuatrecasas, J. Brunelliaceae	$12.95
Monograph 3-5	Singer, R. Omphalinae-Phaeocollybia-Strobilomycetaceae	$11.95
Monograph 6	Lowy, Bernard Tremellales	$12.95
Monograph 7	Berg, C.C. Moraceae, Olmedieae & Brosimeae	$12.95
Monograph 8	Maas, P.J.M. Zingiberaceae: Costoideae	$13.95
Monograph 9	Prance, Ghillean T. Chrysobalanaceae	$27.95
Monograph 10-11	Prance, Ghillean T. Dichapetalaceae, Rhabdodendraceae	$13.95
Monograph 12	Prance, Ghillean T. & Silva, Marlene F. Caryocaraceae	$9.95
Monograph 13	Rogers, David J. & Appun, S.G. Manihot, Manihotoides (Euphorbiaceae)	$23.95
Monograph 14 (1)	Smith, L.B. & Downs, R.J. Pitcairnioideae	$39.95
Monograph 15	Morley, Thomas Memecyleae (Melastomataceae)	$20.00
Monograph 16	Farr, Marie L. Myxomycetes	$22.50
Monograph 17	Singer, Rolf Marasmieae (Tricholomataceae, Agaricales)	to be announced

Postage and Handling: United States and Canada please include $1.00, Foreign Shipments please include $2.00.

GRADUATE STUDIES IN BOTANY AT CANADIAN UNIVERSITIES

compiled by Bryce Kendrick
Department of Biology, University of Waterloo

The first edition of this compilation appeared in 1972. Although faculty mobility has been sharply reduced since then, an updated version should be of value to those students considering graduate studies in one of the many disciplines now embraced by the word Botany.

I regret that this list, like the last, is not quite complete; the few absentee institutions did not reply to three successive letters.

As one who is enjoying a rich and satisfying life in 'Botanical' research and teaching (the fungi aren't really plants at all) may I offer my encouragement to those who are seriously considering a 'botanical' career, and may I suggest that they need look no further than Canada for a good Supervisor.

ACADIA UNIVERSITY, Wolfville, N.S. B0P 1X0
Department of Biology, 5 botanists
Graduate Degrees Offered: M.Sc.

J. Basaraba - Microbial ecology; degradation of polyphenols.

F.C. Bent - Radiobiology; cytogenetics and ultrastructure of plants.

G.M. Curry - Plant photobiology and growth.

D.W. Grund - Mycology, phycology.

S.P. Vander Kloet - Numerical taxonomy and Chemotaxonomy of Gaylussacia and Vaccinium.

UNIVERSITY OF ALBERTA, Edmonton, Alta. T6G 2E9
Department of Botany, 15 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

L.C. Bliss - Plant ecology: northern and alpine ecosystems.

D.D. Cass - Plant anatomy and physiology: seed plant embryology, fertilization mechanisms, comparative structure and protection of megagametophytes.

E.A. Cossins - Plant biochemistry: amino acid biosynthesis, one-carbon metabolism of fungi, algae, higher plants. Synthesis, regulation, intracellular localization of folate derivatives.

K.E. Denford - Chemosystematics: origins of North American and Arctic floras: influence of glaciation and polyploidy on speciation; analysis of proteins, isoenzymes, fatty acids and phenolics.

P.R. Gorham - Plant physiology; limnology: phloem transport; toxicity of blue-green algae, ecophysiology of aquatic macrophytes in relation to thermal discharges.

M. Hickman - Phycology; limnology: Alberta and Yukon lakes; ecophysiology of phytobenthic communities in relation to thermal discharges; physiology of benthic diatoms.

L.L. Kennedy - Mycology: biosystematics of wood decay fungi; structural and ultrastructural development of mycelium and sporocarp; mycelial interactions.

G.H. La Roi - Plant ecology: synecology of natural and man-modified ecosystems of northern Rocky Mountain and western Boreal Taiga regions.

S.K. Malhotra - Cell Biology; biological ultrastructure: organization and biogenesis of cellular membranes.

J.M. Mayo - Plant physiology: water relations under field and controlled environment conditions; mechanisms; gas exchange.

J.G. Packer - Cytological, chemical and numerical taxonomy of arctic and alpine taxa.

W.N. Stewart - Palaeobotany: megafloras of Devonian, Cretaceous and lower Tertiary; pre-Cambrian algae of Rocky Mountains; microfossils of Pleistocene bogs.

D.H. Vitt - Bryology; lichenology: taxonomy, phylogeny and ecology; bryophyte evolution; ecology and biosystematics of Sphagnum.

G.D. Weston - Plant physiology: physiology and biochemistry of root growth; effects of growth regulators on root and shoot development.

D.W.A. Whitfield - Ecological and physiological modelling: simulation modelling of soil-plant-atmosphere transfers of heat, water, radiation, and nutrients; development of computer-controlled facility for measuring CO_2 and H_2O exchange.

BISHOP'S UNIVERSITY, Lennoxville, P.Q. J1M 1Z7
Department of Biological Sciences, 4 botanists
Graduate Degrees Offered: M.Sc.

A.N. Langford - Plant ecology: ecology of peat bogs, forest ecology, chemical antagonism in plants.

J.C. Hull - Plant ecology: grasslands.

K. Moore - Plant physiology: metabolism of aromatic compounds in plants and microorganisms, algal physiology.

D.F. Brown - Genetics: mechanisms of gene mutation, environmental mutagens.

UNIVERSITY OF BRITISH COLUMBIA, Vancouver, B.C. V6T 1W5
Department of Botany, 25 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

R.J. Bandoni - Studies on the Lower Basidiomycetes, especially the Tremellales.

K.I. Beamish - Cytotaxonomic studies in native British Columbia genera of flowering plants.

T. Bisalputra - Ultrastructure and cytochemistry of algal cells particularly the photosynthetic apparatus, cell wall and cell differentiation. Cytological study of wax esters in the marine environment. Cytology of vascular plants.

B.A. Bohm - Chemical taxonomy, including comparative protein structure.

G.E. Bradfield - Terrestrial synecology.

K.M. Cole - Cytology and cytogenetics of marine algae (including ultrastructure of Phaeophyceae and Rhodophyceae).

R.E. DeWreede - Marine benthic ecology: autecology of algae.

R.E. Foreman - Marine benthic ecology: algal primary productivity and population dynamics.

F.R. Ganders - Biosytematics and evolution, genetic polymorphisms in plant populations, and the function and genetics of breeding systems.

B.R. Green - Molecular biology of chloroplasts, in particular, the control of chloroplast protein synthesis and the information content and conformation of chloroplast DNA.

A.J.F. Griffiths - Genetic studies on recombination, nondisjunction, and suppression in Neurospora crassa. Population genetics of plants in the Gulf Islands region of B.C.

P.G. Harrison - Ecology and physiology of estuarine plants: seagrasses and algae.

P.J. Harrison - Field and laboratory culture studies of marine phytoplankton: physiology and ecology.

G.C. Hughes - Taxonomy, ecology, and development in aquatic fungi: Saprolegniales, marine Ascomycetes and Fungi Imperfecti.

J. Maze - Evolutionary morphogenesis; the application of developmental studies to problems of taxonomic and morphological relationships. Distributional studies of angiosperms.

C.J. Marchant - Population cytology and cytotaxonomy of B.C. native vascular plants. Development of a Pacific Northwest Biological Flora through cytoevolutionary studies.

C. Person - Genetics; including studies of parasitic microorganisms.

G.E. Rouse - Palynology of Cretaceous, Tertiary, and Quaternary sediments in Western and Northern Canada emphasizing taxonomy and palaeoecology.

R.F. Scagel - Field and laboratory culture studies of marine benthonic algae; taxonomy, morphology and ecology.

W.B. Schofield - Distribution, systematics and evolution of bryophytes.

J.R. Stein - Morphology, ecology and genetics of algae; distribution of freshwater algae in British Columbia.

F.J.R. Taylor - Marine phytoplankton: taxonomy, morphology and ecology of populations within the North Pacific and Indian Ocean; "red tides"; benthic microorganisms.

I.E.P. Taylor - Structure and growth of fungal and plant cell walls: Structure of plant proteins. Physiology and enzymology of bryophytes. Germination of tree seeds.

R.L. Taylor - Biosystematic research on vascular plants of the Cordilleran region; flora of British Columbia.

G.H.N. Towers - Comparative plant biochemistry. Intermediary metabolism in plants and fungi.

BROCK UNIVERSITY, St. Catharines, Ont. L2S 3A1
Department of Biological Sciences, 2 botanists
Graduate Degrees Offered: M.Sc.

M.S. Manocha - Fine structure of fungi; host-parasite interactions at the cellular and molecular levels; lipid metabolism in fungi.

D.J. Ursino - Effects of ionizing radiation on plant processes,especially photosynthesis, carbon metabolism and translocation.

UNIVERSITY OF CALGARY, Calgary, Alberta
Department of Biology, 7 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

J.D. Bewley - Physiological and chemical control of seed dormancy and germination; biochemical action of phytohormones (especially gibberellins); inter-relationship between phytochrome action and gibberellin synthesis.

C.D. Bird - Floristics, ecology and systematics of lichens and bryophyta.

R.T. Ogilvie - Ecology of High Mountain Vegetation, alpine plant communities, timberline; distribution and evolution and of cordilleran species in W. Canada, evolutionary relationships, morphology and taxonomy of Picea in W. Canada.

D. Parkinson - Microbial ecology with special reference to the root region and decomposition of leaf litter.

R.P. Pharis - Physiology of plant growth and development, especially physiology and biochemistry of the gibberellins.

D.M. Reid - Plant hormones and phytochrome: developmental physiology of plants, especially sites of synthesis of gibberellins;

B.C. Sharman - Morphogenesis and developmental anatomy of cereals and herbage (range) grasses; production, by 2,4-D of abnormalities in the inflorescence in cereals.

T.A. Thorpe - Morphology, physiology and biochemistry of organ initiation in tissue culture systems; biosynthetic capacity of callus tissue with respect to secondary metabolism; use of tissue culture techniques for propagation in excised plant parts and callus.

CARLETON UNIVERSITY, Ottawa, Ontario K1S 5B6
Department of Biology, 11 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

Isabel Bayly - Wetland ecology; ecotypic variability of vascular plants; plant-soil-water relationships.

W.I. Illman - Ecological physiology of plant parasitic fungi; systematic mycology.

J.D.H. Lambert - Quantitative plant ecology: vegetation analyses in Arctic and forest environments.

H.G. Merriam - Ecosystem structure and function and ecological energetics.

M.E. McCully - Cytology, histology, and histochemistry in relation to plant development.

G. Setterfield - Structure and function of cell organelles in relation to growth and differentiation.

K.W. Joy - Plant enzymology; nitrate reduction and amino acid synthesis in plants. Nitrogen metabolism of the chloroplast.

J. Sinclair - Cell physiology including photosynthetic electron transport, ion movements, and cytoplasmic streaming.

J.A. Webb - CO_2-assimilating pathways in plants; synthesis, metabolism and transport of sugars in plants.

F. Wightman - Biochemistry of plant growth, particularly biosynthesis of growth hormones and the enzymology of amino acid metabolism.

Adjunct: J. McNeill - Biosystematics and numerical taxonomy of vascular plants.

CONCORDIA UNIVERSITY (LOYOLA), Montreal, P.Q. H3G 1M8
Department of Biology, 3 botanists
Graduate Degrees Offered: M.Sc.

B. Mangat - Plant Physiology, biochemistry. Environmental effects on plant growth and development; effect of pollutants on the environment.

R. Omran - Plant Physiology, horticulture, nutrition.

P. Widden - Microbial Ecology.

CONCORDIA UNIVERSITY (SIR GEORGE WILLIAMS), Montreal, P.Q. H3G 1M8
Department of Biological Sciences, 3 botanists
Graduate Degrees Offered: M.Sc.

S.S. Ashtakala - Physiology biochemistry and biochemical systematics of flavonoids; responses of plants to herbicides, their fate, mode of action and role as environmental contaminants.

R.K. Ibrahim - Plant biochemistry: regulation of metabolic processes and biochemical differentiation in plant tissue and cell cultures; enzymology of phenolic compounds.

R.M. Roy - Radiation biology: biochemical and physiological effects of ionizing radiation on plants; biochemical and biophysical changes in nucleohistones of pine following X-irradiation.

DALHOUSIE UNIVERSITY, Halifax, Nova Scotia
Department of Biology, 13 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

A.R.O. Chapman - Experimental autecology and taxonomy of seaweeds, particularly the larger Phaeophyta.

R.W. Doyle - Intra-population variability in shallow and deep-living marine organisms; growth and nutrient-uptake kinetics of competing cell populations.

M.J. Harvey - Plant biosystematics and biogeography; plant ecology.

G.S. Hicks - Plant development: Morphogenesis, histology, organ culture, regulatory mechanisms.

W.C. Kimmins - Plant virology (host resistance mechanisms); cell wall synthesis.

P.A. Lane - Community ecology, structure and stability of plankton communities, competition-predation phenomena, eutrophication.

R.W. Lee - Genetics; characterization, and regulation of chloroplast DNA in Chlamydomonas.

K.E. von Maltzahn - Regeneration and reproduction in lower plants.

R.P. McBride - Microbial ecology of disturbed habitats.

J.G. Ogden - Environmental distribution of Sr90; radiocarbon dating; pollen stratigraphy.

D.G. Patriquin - Microbiology and physiology of Nitrogen fixation, sea grasses and salt marshes.

E.C. Pielou - Mathematical ecology - including plant ecology.

G.A. Riley - Biological oceanography, phytoplankton.

UNIVERSITY OF GUELPH, Guelph, Ontario N1G 2W1
Department of Botany and Genetics, 14 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

W.G. Barker - The physiology of plant growth and development.

D.M. Britton - Cytogenetics of higher plants, especially ferns and their phylogeny.

J.M. Canne - Taxonomy of flowering plants.

H.M. Dale - Factors influencing distribution of aquatic vascular plants.

J.F. Gerrath - Taxonomy and cytology of fresh water algae.

R.F. Horton - Plant growth regulation.

D.W. Larson - Ecology (Lichens).

B.C. Lu - Fine structure of meiosis and fungi.

H. Lue-Kim - Physiological effects of high oxygen concentration on algal cell synchrony.

R.L. Peterson - Experimental studies on structure and development in vascular plants.

W.E. Rauser - Regulation of plant growth and development.

R.J. Reader - Seasonality of growth and development in ecological systems.

R.T. Riddell - Development morphology - mineral nutrition of developing fruits.

D.W. Smith - Vegetation community dynamics and productivity.

UNIVERSITY OF GUELPH, Guelph, Ontario N1G 2W1
Department of Environmental Biology, 13 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

J.F. Alex - Plant taxonomy.

G.L. Barron - Mycology; mycotoxins in feed.

L.V. Busch - Plant pathology: Verticillium diseases; diseases of potato.

L.V. Edgington - Chemical control of plant diseases, systemic fungicides, seed treatments.

R.A. Fletcher - Plant physiology: hormonal regulation of plant growth and development.

S.G. Fushtey - Nematology and plant pathology - nematode diseases of plants; diseases of turf grasses.

R. Hall - Physiology of fungi, diseases of ornamentals and biochemical taxonomy of fungi.

G. Hofstra - Plant ecology.

C.B. Kelly - Plant pathology: control of plant diseases with fungicides. Fruit diseases.

B.H. MacNeill - Plant pathology: diseases of processing vegetables, turnips.

G.R. Stephenson - Weed science. Control of woody plants. Physiology and biochemistry of herbicidal action.

J.C. Sutton - Plant disease diagnosis. Bacterial diseases.

C.M. Switzer - Weed control in lawns and golf courses.

LAKEHEAD UNIVERSITY, Thunder Bay, Ont. P7B 5E1
Department of Biology, 6 botanists
Graduate Degrees Offered: M.Sc.

P. Barclay - Vegetation analysis and productivity, community analysis, microclimate.

C. Garton - Plant taxonomy and ecology; plants of Pukaskwa National Park and the Lake Superior Basin.

G. Harvais - Nutritional requirements in wild terrestrial orchids; physiology of symbiotic fungi.

D.R. Lindsay - Plant ecology with special reference to niches, microclimate and plant interrelationships. Plant taxonomy and physiology.

A.D. Macdonald - Floral development in the 'Amentiferae'; floral concepts; plant morphology and anatomy.

W.H. Parker - Gene flow and evolution in Canadian true firs.

LAURENTIAN UNIVERSITY, Sudbury, Ontario P3E 2C6
Department of Biology, 3 botanists
Graduate Degrees Offered: M.Sc.

G.M. Courtin - Ecology and physiology of arctic and alpine tundra plants; reclamation of industrial barrens.

D.H.S. Richardson - Effects of atmospheric pollution on lichens; inter-relations between lichens and associated organisms.

E.K. Winterhalder - Ecology: plant-soil relationships on sand dunes and limestone; reclamation of industrial barrens.

UNIVERSITY OF MANITOBA, Winnipeg, Man. R3T 2N2
Department of Botany, 15 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

Plant Physiology and Biochemistry

E.R. Waygood, B.R. Irvine and S.S. Badour
Intermediary plant metabolism, enzymology, photosynthesis and respiration; associated with plant pathology and ecology programs. Physiology and biochemistry of microalgae: photophysiology, mineral nutrition and metabolism of unicellular green algae and diatoms.

Plant Pathology

J. Reid, D. Punter and B.R. Irvine
Host-parasite relations; vascular parasites, forest pathology and virus diseases of cereal crops.

Mycology

P.K. Isaac, J. Reid, T. Booth and A. Olchowecki
Physiology of filamentous fungi; developmental morphology; taxonomy of the Ascomycetes; aquatic Phycomycetes.

Physical Cytology

P.K. Isaac and L.A. Van Caeseele
Optical and electron-microscopy of cells and microorganisms.

Plant Growth and Development

D. Palmer
Effect of chemical and physical factors on plant growth and development; differentiation in cell, tissue and organ cultures.

Ecology

J.M. Shay and J.M. Stewart
Ecosystem studies; the ecology of wetlands, incorporating studies of dynamics, energetics and productivity of Phragmites, Zizania and other genera.

Phycology

G.G.C. Robinson, E.R. Waygood
Experimental ecology of fresh water algae, involving the identification of energy routes and the estimation of energy transfers in lake ecosystems.

Bryology

R.E. Longton
Experimental taxonomy, ecology, ecophysiology and productivity of bryophytes with particular reference to their performance in boreal, arctic and antarctic environments.

MCGILL UNIVERSITY, Montreal, P.Q. H3C 3G1
Department of Biology, 14 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

A.N. Auclair - Production and mineral cycling in Arctic, Boreal and Temperate ecosystems. Quantitative plant ecology and systems analysis.

W.G. Boll - Growth patterns and biochemical differentiation in plant tissue and cell suspension cultures; biosynthesis of storage proteins in barley.

A.H. Bussey - Structure, function and genetics of cell surfaces. Yeast killer factor system.

S.P. Gibbs - Cell biology and electron microscopy. Control of chloroplast development. Replication of chloroplast DNA. Ultrastructure of mitosis in algae.

M.E. Goldstein - Phycology. Ecology and mariculture of seaweed resources.

W.F. Grant - Cytogenetics, biosystematics and chemical mutagenesis. Cytophotometry, chromatography, electrophoresis, anther- and embryo-culture; cytogenetic effects of pesticides; mutations in man by environmental agents.

E. Käfer-Boothroyd - Genetic analysis of DNA repair and recombination in the fungus Neurospora crassa. Mapping of nuclease and UV-sensitive mutants affecting recombination and DNA repair.

J. Kalff - Phytoplankton and macrophyte ecology; limnology, algal culture, lake eutrophication.

G.A. Maclachlan - Mechanisms of hormone action; turnover of plant cell wall polysaccharides and essential enzyme activities associated with growing tissues.

W.C. Oechel - Physiological plant ecology. Photosynthesis, respiration and productivity in relationship to environmental factors and tissue water potential; acclimation and ecotypic differentiation.

R.J. Poole - Membrane transport. Location and characterization of ion transport mechanisms at the cell membrane or vacuole membrane of plant cells.

R. Sattler - Developmental and theoretical plant morphology. Floral development; shoot construction; concepts of homology.

H. Tyson - Plant biochemical and population genetics: genotype-environment interactions and environmentally induced heritable changes in Linum (flax), as displayed by biochemical characteristics; genotypic control of isoenzyme activity.

C.M. Wilson - Life cycles and cytology of the lower fungi, especially the sexual phase.

MCMASTER UNIVERSITY, Hamilton, Ontario L8S 4K1
Department of Biology, 7 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

D. Davidson - Experimental cytology and development; cell proliferation.

G.P. Harris - Limnology, community ecology; phytoplankton studies.

K.A. Kershaw - Plant ecology, lichen physiology; computer simulation studies.

J.N.A. Lott - Ultrastructure and physiology of storage tissues in seeds.

J.J. Miller - Determination of nuclear phase in the yeast Saccharomyces.

A. Oaks - Regulation of nitrogen metabolism during seedling development.

S.F.H. Threlkeld - Analysis of genetic mechanisms in Neurospora.

MEMORIAL UNIVERSITY OF NEWFOUNDLAND, St. John's, Newfoundland A1C 5S7
Department of Biology, 6 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

A.K. Bal - Physiology and cytology of symbiotic nitrogen-fixing systems. Ultrastructural localization of enzymes during plant growth and development. Biology of Rubus chamaemorus L.

G.R. Brassard - phytogeography and ecology of mosses and liverworts in Newfoundland, Labrador, and Arctic Canada.

R.A. Nolan - Nutritional, biochemical, immunological, pathogenicity, and mass-production studies with fungi important in biological control of blackflies and forest insect pests.

P.J. Scott - Vascular flora of Newfoundland and Labrador with emphasis on endemic and disjunct species.

G.R. South - Marine phycology; floristics, ecology, and culture of eastern Canadian marine algae. Marine algae of New Zealand.

A. Whittick - Marine algae: biology of the Rhodophyta, especially taxonomy, karyology, life histories, and ecology in eastern Canadian waters. Distribution and production ecology of aquatic macrophytes.

UNIVERSITE DE MONCTON, Moncton, N.B. E1A 3E9
Département de Biologie, 1 botanist
Graduate Degrees Offered: M.Sc.

J.S.S. Lakshminarayana - Algology: studies of eutrophication.

UNIVERSITE DE MONTREAL, Montréal, P.Q. H3T 1J4
Département de Sciences Biologiques,9 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

Morphologie, systématique, pathologie et écologie végétales

J. Beaudry - Biosystématique du genre Solidago (cytotaxonomie; analyse de croisements intra- et interspécifiques); analyse des phénomènes de spéciation.

A. Bouchard - Biogéographie, écologie végétale, taxonomie.

M. Famelart - Etudes morphologiques des plantes vasculaires.

P. Neumann - Biologie et physiologie des champignons.

E. Rouleau - Taxonomie végétale de Terre-Neuve et du Québec. Flore de l'Est du Canada.

J.P. Simon - Ecologie génétique et évolution. Adaptation des écotypes de plantes supérieures au niveau enzymatique.

J. Vieth - Anatomie végétale; étude de structures normales et tératologiques.

Physiologie végétale

M. Cailloux - Mécanisme cellulaire de l'absorption de l'eau.

C.T. Phan - Métabolisme végétal; modifications dues à la structure anatomique de l'organe (fruits, tubercules,...); adaptation aux changements physiques et chimiques de l'environnement (pollution, écoclimat, microclimat,...).

MOUNT ALLISON UNIVERSITY, Sackville, N.B.
E0A 3C0
Biology Department, 3 botanists
Graduate Degrees Offered: M.Sc.

D.S. Fensom - Biophysics applied to botanical subjects; bio-electrical phenomena; long-distance translocation and membrane probing by electro-osmosis.

H. Harries - Land-use ecology.

R.G. Thompson - Plant physiology; long-distance translocation in plants; bio-electric phenomena.

UNIVERSITY OF NEW BRUNSWICK, Fredericton, N.B.
E3B 5A3
Department of Biology, 8 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

B.G. Cumming - Tissue culture and the control of germination, growth, development, flowering, and reproduction in plants of economic importance.

L.A. Dionne - Genetics and cytogenetics; speciation in plants.

N.W. Radforth - Paleoecological problems of the muskeg, including aerial interpretation; the properties of peat bearing on growth.

R.T. Riding - Plant anatomy-morphology; growth and development of conifers.

A.R.A. Taylor - Marine phycology, with particular reference to ecological,developmental, cultural, and systematic studies of Rhodophyta;algae of New Brunswick streams.

R.W. Wein - Terrestrial plant ecology; fire ecology and nutrient cycling in arctic tundra and Acadian forest.

N.J. Whitney - Fungal degradation of water pollutants; mycological studies of phytopathogenic fungi.

B.Y. Yoo - Biogenesis of cellular organelles; growth and development of plants.

UNIVERSITY OF OTTAWA, Ottawa, Ontario K1N 6N5
Department of Biology, 5 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

F.J.P. Briand - Biotic interactions in marine and freshwater planktonic communities; biological control of toxic algal blooms. Physiological ecology of algae: adaptations to cold stress.

F. LeBlanc - Influence of sulfur dioxide and fluoride on non-vascular plants. Mapping atmospheric pollution on the basis of lichen sensitivity. Ecology and taxonomy of bryophytes. Epiphytes (tropical and others). Vegetation of Quebec and Ontario.

C. Nozzolillo - Anthocyanin biochemistry;nature of anthocyanins in seedlings and vegetative organs. Nature of seed exudates during imbibition. Effect of air pollution on flavonoid constituents of tree leaves.

R.M. Reed - Community ecology; terrestrial vegetation and plant-soil interactions. Analysis of plant communities as a tool for land management. Interception of precipitation by vegetation.

P. Weinberger - Physiological, morphogenetic and biochemical studies relevant to the environmental control of plant growth,with special reference to temperature, chemical (pesticide) and sonic stress.

QUEEN'S UNIVERSITY, Kingston, Ontario K7L 3N6
Department of Biology, 9 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

R.G.S. Bidwell - Plant physiology and biochemistry; nitrogen metabolism, photosynthesis and photorespiration; mechanisms controlling translocation of photosynthetically-fixed C to roots, shoots and buds.

K. Budd - Fungal physiology; transport of ionic solutes; carbon metabolism, esp. CO_2 fixation.

D.T. Canvin - Function and regulation of photorespiration, and its relation to photosynthesis; fatty acid biosynthesis, and regulation of oil/protein balance in seeds.

D.T. Dennis - Isolation and characterization of

plant enzymes involved in metabolic regulation.

J.M. Bristow - Biology of aquatic vascular plants; effects of pollution; sources of nutrients; relationship of primary productivity to competitive ability.

S.R. Brown - Paleoecology and biogeochemistry of meromictic lakes.

A.A. Crowder - Autecology of Portulaca, Maianthemum, Fragaria and Najas; palaeoecology and pollen transport; aquatic plant ecology - effects of pollution.

H.M. Good - Ecology of fungi in heartwood of standing trees; fungal spore physiology - germination, longevity and microstructure.

W.J. Roff - Wetland and forest ecology; autecology and population biology of Leersia; energy fixation, diversity and species distribution in marsh and forest.

UNIVERSITY OF REGINA, Regina, Saskatchewan
S4S 0A2
Department of Biology, 4 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

G.F. Ledingham - Vascular plant systematics; phylogeny of Astragalus, and its relationships with several leguminous genera.

A. Quick - Host-parasite physiology; germination studies; nucleic acid relations in both these areas.

M.V.S. Raju - Morphological and life-history studies of prairie plants; development of Euphorbia esula; regeneration of detached leaves of Echeveria elegans.

A. Walther - Seed production, physiology of germination, metabolic changes in developing and senescing photosynthetic cotyledons of native prairie plants.

UNIVERSITY OF SASKATCHEWAN, Saskatoon, Sask.
S7N 0W0
Department of Biology, 11 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

L.C. Fowke - Ultrastructure and function of algal and higher plant cells.

H.E. Gruen - Mycology: physiology of growth regulation in agaric fruit bodies and Phycomyces sporangiophores.

U.T. Hammer - Limnology: environmental interactions with organisms; plankton and production; eutrophication and pollution.

J. King - Plant physiology: nitrogen metabolism; enzymology; kinetics of membrane transport; plant tissue culture.

R.A.A. Morrall - Plant pathology: epidemiology of fungal pathogens; diseases of specialty crops; saprophytic soil microfungi.

J.M. Naylor - Cytology and physiology: studies of growth regulation in buds and seeds.

R.L. Randell - Systems ecology: ecosystem organization; integrated pest management; digital computer simulation.

M. Rever-Duwors - Ecological genetics: genetic control and evolutionary significance of selenium accumulation in plants.

J.W. Sheard - Lichen taxonomy and ecology; general numerical taxonomy and quantitative ecology.

T.A. Steeves - Morphology and morphogenesis of vascular plants.

F.L.M. Turel - Physiological plant pathology: saprophytic culture of rust fungi; nutritional, light and temperature effects.

UNIVERSITY OF SASKATCHEWAN, Saskatoon, Sask.
S7N 0W0
Department of Plant Ecology, 4 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

R.T. Coupland - Grassland ecology.

V.L. Harms - Plant systematics.

R.E. Redmann - Physiological ecology.

J.S. Rowe - Forest and wildland ecology.

SIMON FRASER UNIVERSITY, Burnaby, B.C. V5A 1S6
Department of Biological Sciences, 11 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

R.C. Brooke - Plant Ecology:ecology of coniferous forest, subalpine, alpine and arctic vegetation; ecophysiology, plant interactions.

L.D. Druehl - Biology of kelp.

F.J.F. Fisher - Plant biosystematics and evolution, eco-physiology, plant morphogenesis, general-systems theory.

C.L. Kemp - Genetics and biochemistry of microorganisms, particularly algae; mutagenesis, UV repair regulatory mechanisms.

G.R. Lister - Conifer eco-physiology-photosynthesis, survival strategies.

R.W. Mathewes - Postglacial and interglacial paleoecology.

M. McClaren - Mycology, especially fungal ecology in marine and terrestrial environments.

J.E. Rahe - Biochemistry and physiology of plant host-parasite interaction; biological control of plant diseases; factors affecting vegetation succession and browse quality on hydro rights-of-way.

H.L. Speer - Biochemical and cellular events of the early plant germination processes.

L.M. Srivastava - Cell growth and differentiation, physiology of phloem transport, structure and physiology of cambium.

W.E. Vidaver - Photomorphogenetic and photosynthetic processes in plants.

UNIVERSITY OF TORONTO, Toronto, Ontario M5S 1A1
Department of Botany, 35 botanists
* = cross appointed to Erindale or Scarborough College
Graduate Degrees Offered: M.Sc. and Ph.D.

*J.F. Ammirati - Mycology, taxonomy of fleshy fungi (Basidiomycetes and Ascomycetes, especially Agaricales).

N.P. Badenhuizen - Cell biology.

*P.W. Ball - Taxonomy and evolution of the plants of Eastern Canada.

K.R. Chandorkar - Biosynthesis of fructo-oligosaccharides; biochemical and physiological effects of absorbed radioactive isotopes.

J.E. Cruise - Flora of Ontario, the Great Lakes drainage basin and N.E. North America. Phylogeny and systematics of Euphorbiaceae, Fabaceae, Orchidaceae and of Amelanchier, Panicum and other indigenous phanerogams.

*W.R. Cummins - Plant responses to water deficiency and cold, including hormonal responses. Physiology of elongation growth: growth rate - turgor pressure and biochemistry of "stored growth". Physiology of low temperature and Arctic adaptations.

J. Dainty - Water and ionic relations, biophysical studies of membrane transport.

N.G. Dengler - Developmental anatomy, leaf structure as related to function, the role of cell division and cell enlargement on leaf development.

*R.E. Dengler - Developmental anatomy, seed maturation and germination.

*W.G. Filion - Genetics of maize, differential chromosome banding, in situ hybridization, DNA characterization and SEM studies related to chromosome structure and evolution.

J.W. Grear, Jr. - Flora of Ontario, evolution and systematics of Leguminosae.

M.C. Heath - Cytology, ultrastructure and biochemistry of rust fungi.

J.A. Hellebust - Membrane transport, heterotrophy and biochemical aspects of osmoregulation in algal cells, ecology of arctic freshwater and marine algae, oil spill effects.

V.J. Higgins - Physiological basis of plant disease resistance and fungal physiology.

*P.A. Horgen - Developmental molecular studies on eukaryotic microbial model systems (aquatic fungi and cellular slime molds): hormonal effects on nucleic acid and protein biosynthesis, changes in chromosomal proteins associated with gene activation and the regulation of RNA-synthesizing enzymes.

T.C. Hutchinson - Physiological and applied ecology, heavy metal and oil pollution studies, arctic ecology, algal tolerances of metal pollution, effects of acid rains.

*G.F. Israelstam - Physiology and biochemistry of plant growth and development.

R.L. Jefferies - Physiological plant ecology, mineral nutrition of plants.

E.R. Luck-Allen - Taxonomy of fungi, systematic studies of Ontario Tremellales, and of selected Ascomycetes.

D.W. Malloch - mycology; taxonomy and ecology of boreal mushrooms, Ascomycetes.

*P.F. Maycock - Vegetation ecology, vegetation complex of Central-Eastern Canada, conservation ecology.

J.H. McAndrews - Vegetation and climatic history of North America. Compilation of fossil pollen data for the past 12,000 years. Interpretation based on computer-assisted linkage of modern pollen rain, vegetation and climate with fossil pollen assemblages.

J.F. Morgan-Jones - Developmental studies in Ascomycetes, ascocarp development in Hypodermataceae and perithecial development in Chaetomium. Poisonous mushrooms.

Z.A. Patrick - Ecology of soil-borne diseases, biological activity of plant decomposition products, biological control of plant pathogens.

*J.C. Ritchie - Quaternary ecology of the Western interior of Canada and various Canadian Arctic regions, using pollen, megafossil and other analytical techniques.

K.H. Rothfels - Studies on chromosome structure and function: cytotaxonomy of black flies, chromosome hybridity in grasshoppers.

P. Sarkar - Cytotaxonomy of some grasses, karyotype of some species of Pinus, chromosome banding.

T. Sawa - Systematics and cytology of algae, including Characeae.

*C. Sparling - Phytoplankton and lake chemistry in Ontario, carbon cycling in lakes, extracellular release in algae and bacteria.

P.M. Stokes - Phytoplankton response to heavy metals; adaptation to smelter contaminated lakes, mechanisms of tolerance and of uptake, metal localization in algal cells. Effects of acidification and organo-metal complexes.

N.A. Straus - Studies of chromosome structure and eukaryotic evolution, using DNA reassociation and hybridization.

*J. Svoboda - High Arctic vascular plant communities, their composition, production, distribution and southern boundaries. Autecological studies on arctic species.

*G.R. Thaler - Taxonomy.

M.T. Tyree - Water stress resistance and yield in forest trees, ionic relations of water plants.

J.P. Williams - Structure and biochemistry of chloroplasts, lipid biosynthesis,membrane growth and development.

TRENT UNIVERSITY, Peterborough, Ont. K9J 7B8
Department of Biology, 3 botanists
Graduate Degrees Offered: M.Sc

C.D. Johnson - Population dynamics of weeds.

R. Jones - Effects of waterlogging and flooding on plant growth, nutrition and distribution; geochemistry and paleolimnology of lake sediments.

J.E. Nighswander - Rust disease of conifers; aquatic fungi.

UNIVERSITY OF VICTORIA, Victoria, B.C. V8W 2Y2
Department of Biology, 8 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

A.P. Austin - Growth, mitotic phenomena, phenology and experimental ecology of marine algae; micro-benthic algal populations as indicators of water quality.

D.J. Ballantyne - Plant physiology; storage and senescence of conifer pollen, flower bud development of Rhododendron, mode of action of air pollutants on plants.

M.A.M. Bell - Plant community ecology, applied ecology; forest communities of interior B.C. and Vancouver Island; ethnobotany of coast Indians; restoration of derelict land and surface mines.

E.M. Hagmeier - Quantitative biogeography, limnol-benthic diatoms.

L.A. Hobson - Phytoplankton ecology, physiology and biochemistry; diversity and physiology of marine phytoplankton.

J.N. Owens - Growth cycles and development of vegetative and reproductive shoots of confiers.

J.W. Paden - Systematics of ascomycetes and imperfect fungi; morphology and life cycles of North American and Neotropical discomycetes; soil microfungi of Vancouver Island forest communities.

E.D. Styles - Genetics; paramutation, duplicate gene action, and developmental control of anthocyanin synthesis in maize.

UNIVERSITY OF WATERLOO, Waterloo, Ont. N2L 3G1
Department of Biology, 10 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

E.B. Dumbroff - Mechanisms that control growth and dormancy in seeds and higher plants; physiological phenomena associated with salt stress in plants.

H.C. Duthie - Ecology, primary productivity, and taxonomy of freshwater algae.

H.R.N. Eydt - ecology of peat bogs; their palynology and the plant composition of the peat.

W.R. Hawthorn - Quantitative plant ecology. Plant population biology. The ecology of Plantago species in Southern Ontario.

W.B. Kendrick - Taxonomic, developmental and ecological studies of temperate and tropical Fungi Imperfecti; decomposition of plant debris by terrestrial and aquatic fungi; computer graphics in mycology; fungus-invertebrate interactions; fungal degradation of plastics.

C.I. Mayfield - Ecology of soil and water microorganisms. Nitrogen cycle in soils and carbon cycle in fresh water. Effects of pesticides on non-target microorganisms.

J.K. Morton - Biosystematic and phytogeographic studies on the Canadian,North American and tropical African floras. Ecology of Canadian plant communities. Palynology.

J.C. Semple - Cytotaxonomic and chemosystematic studies of North American flowering plants, particularly Compositae.

J.E. Thompson - Membrane biosynthesis. The role of membranes in cell-cell interaction The effects of cell differentiation on membrane structure and function.

K. Zachariah - Cytology and development of lower plants.

UNIVERSITY OF WESTERN ONTARIO, London, Ontario
Department of Plant Sciences, 20 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

J.B. Bancroft - Plant virus mutants.

P.B. Cavers - Weed ecology, with special emphasis on population dynamics and seed production, dispersal and germination; biology of Canadian weeds - a basis for more effective control measures.

F.S. Cook - Geographical and ecological distribution of bryophytes in S.W. Ontario.

J.E. Cummins - Gene activity during the cell cycle; environmental pollution and gene damage.

A.W. Day - Gene activity during the cell cycle; function of fungal fimbriae in fusion and flocculation.

D. Fahselt - Secondary plant substances and their application to systematic problems.

R.I. Greyson - Experimental analysis of flowers and other organs.

J.R. Harle - Chemical mutagenesis and mutation breeding in Arabidopsis; genetic studies on induced mutants in Arabidopsis.

D.B. Hayden - Mode of action and genetic control of proteases in maize; physiology and biochemistry of virescent mutants in maize.

C.J. Hickman - Biology and taxonomy of plant pathogenic fungi, particularly Phycomycetes.

W.G. Hopkins - Development of photosynthesis in maize.

R.B. van Huystee - Biochemical determinants of cell development.

R.B. Jancey - Organization of the interphase nucleus of Zea mays; theoretical models for the detection of group structure.

W.E. McKeen - Fungal host-parasite relations; fungicidal protection of corn seed.

D.A. McLarty - Growth of algae.

M.A. Maun - Ecological impact of herbicides on the reproductive biology of plants; effect of hiway deicing agents on the growth and survival of white cedar (Thuja occidentalis).

L. Orloci - Statistical ecology of populations and communities.

J.B. Phipps - Theory and methodology of systematics; evolutionary biology of a weedy shrub - hawthorn.

D.B. Walden - Cytogenetics of Maize.

A.M. Wellman - Growth of micro-organisms before and after cryogenic storage; growth of fungi on hydrocarbons.

UNIVERSITY OF WINDSOR, Windsor, Ontario N9B 3P4
Department of Biology, 4 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

W.G. Benedict - Interaction of environmental factors on plant disease development.

D.T.N. Pillay - tRNA species and amino acid-tRNA synthetases in developing and aging systems in plants.

D. des S. Thomas - Roles of microtubules, microfilaments and secretion in plant growth and morphogenesis.

D.G. Wallen - Adaptation of planktonic algae - response to variations in light, growth rates, photosynthesis rates and photosynthetic pigments; production processes in western Lake Erie.

YORK UNIVERSITY, Downsview, Ontario M3J 1P3
Department of Biology, 4 botanists
Graduate Degrees Offered: M.Sc. and Ph.D.

M. Boyer - Foliage diseases of poplar; the impact of pesticides on the environment.

B. Colman - Plant physiology and biochemistry, especially glycolate metabolism in blue-green algae.

I.B. Heath - Mitosis in fungi.

M.C. Lewis - Physiological ecology; tundra ecology.

The Bulletin of the Canadian Botanical Assoc.
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University of Waterloo
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EMPLOYMENT WANTED

Botanical illustrating sought, full time or occasional free-lance or a full time herbarium or museum position which may include some teaching or illustrating with general curatorial duties. B.Sc. (Michigan State University), 1971; B.Sc.-Botany (MSU), 1973; M.Sc.-Taxonomy under Dr. John H. Beaman (MSU), 1975. Presently Curatorial Assistant, New York Botanical Garden.

Complete curriculum vitae, sample illustrations, and references can be supplied upon request. Inquiries should be directed to Miss Phoebe A. Hunter, Curatorial Assistant, New York Botanical Garden, Bronx, New York 10458 (212-220-8700).