THE CANADIAN BOTANICAL ASSOCIATION

BULLETIN

L'ASSOCIATION BOTANIQUE DU CANADA

April, 1973 Volume 6 Number 2 Waterloo

THE 1973 ANNUAL MEETINGS

Members of the CBA/ABC are reminded that the Annual Meeting will be held between June 3rd and 7th at the University of Western Ontario in London. Full details of the programme, accommodation and of field trips were given in the January issue of the Bulletin. The main theme of the Conference is Man's Impact on the Canadian Flora and a Symposium with this title is being held on Tuesday June 5th. The invited participants and the titles of their contributions are as follows:

Dr. J.H. McAndrews, Royal Ontario Museum, Toronto. The Fossil History since the advent of man.

Dr. R.L. Taylor, University of British Columbia, Vancouver. The Canadian Flora since Colonization (1700-1900).

Dr. J.K. Morton, Univ. of Waterloo, Waterloo. Recent changes in the Canadian flora.

Dr. P.B. Cavers, Univ. of Western Ontario, London. Man's Impact on weed ecology.

Dr. J.G. Ogden III, Dalhousie Univ., Halifax. The Biology of Fresh Water.

Dr. N. Pearson, Univ. of Western Ontario, London. The Impact of Urbanization.

Dr. T.C. Hutchinson, Univ. of Toronto, Toronto. The Impact of Pollution.

Sectional meetings consisting of contributed papers are being arranged for Monday June 4th and Thursday June 7th, whilst Wednesday June 6th is being devoted to field trips to placed of botanical interest in Southern Ontario. CBA members are asked to publicize these meetings widely and, if at all possible to attend and contribute to their success.

A registration and field trip sheet is included with this issue of the Bulletin. Members are asked to complete and return it without delay.

SYSTEMATICS AND PHYTOGEOGRAPHY SECTION

There has been a very poor response from members of this section to the call for papers to be presented at the Annual General Meetings. It is appreciated that the main theme of the meetings is very much in line with the section's own interests and that members may feel it inappropriate to offer papers over and above those being presented at the Symposium. However, any members of this section who are prepared to present brief papers (15 mins.) are urged to get in touch with the secretary of the CBA/ABC (Dr. Mary E. Elliott, Plant Research Institute, Central Experimental Farm, Ottawa, Ont. K1A 0C6) without delay.

J.K. Morton (Chairman S. & P. Sect.)

BIOLOGICAL COUNCIL OF CANADA

The Executive of BCC has prepared an extensive government mailing list to which all future Reports, suitably prepared and covered, will be sent. It is hoped that this will intensify the rather faint image that the BCC presently has in government circles.

The Canadian Committee on Man & the Biosphere will have a membership of about twenty, broadly covering areas of biology, medicine, technology, sociology and earth sciences. The BCC has provided the Committee with names of Bioscientists as condidates for membership on CCMAB. Dr. Roy L. Taylor (BCC Vice-President) has been appointed a Corresponding Member of CCMAB, and will be responsible for receiving information from the Committee as well as transmitting BCC input to the Committee.

Dr. David Munro, Director-General, Intergovernmental Affairs (DOE) gave an interesting account of the Stockholm conference and the Stockholm Action Plan. He explained that the Stockholm conference was primarily a political exercise, which is clearly necessary before any large scale international exercise can be undertaken. However, in spite of its political nature, there was considerable biological input. A declaration of 26 principles to guide decision- making relating to the preservation of the environment, as well as to national development, may well become the basis of international law concerning the environment. A total of 109 recommendations - the Stockholm Action Plan - are under consideration by the U.N. It is hoped that a U.N. Council for Environmental Affairs, with a permanent Secretariat and $100 million for funding, will be set up. The plan will follow up matters of education, human settlements (there will be a conference in Vancouver in 1975 on this subject), pollution and pollution control, national resource management (with particular emphasis on the cleaning up of rivers) and the maintenance of environmental quality (current action is evident with regard to ocean dumping).

DR JOHN HUTCHINSON 1884-1972

In the January Bulletin we published a preliminary note on the death of Dr. Hutchinson. This note was inadvertently included under items of Personalia for the Dept. of Biology, U.B.C. The following note on Dr. Hutchinson and his career is taken from the Plant Science Bulletin of the Botanical Society of America Vol. 18 No. 4.

With the death of Dr. John Hutchinson at the age of 88 there passes one of the great figures of British systematic botany. From humble beginnings he rose through the ranks of the manual gardening staff at Kew, which he entered in 1904, to a position of international eminence in botany, becoming Keeper of the Museums at Kew and a Fellow of the Royal Society. His fame in taxonomic botany rests mainly on his outstanding contributions to the study of the classification and evolution of flowering plant families, but also on his works in other fields of botany, written in an enviably easy style and based on a wealth of experience equalled by no other living botanist.

During his time at Kew he made major contributions to the Flora of Tropical Africa. He wrote, in conjunction with Dr. J.M. Dalziel, a two-volume account of the Flora of West Tropical Africa, a work which by its conciseness and careful planning has served as a model for a number of later Floras.

With the publication in 1926 of the first volume of his Families of Flowering Plants, followed by the second volume in 1934, he gave an impetus to the study of plant evolution and phylogeny which caused a ferment of interest in the 1930s and affected all students of phylogeny and systematic botany. His theories, although controversial, were so far reaching in their effects that even now no one can write on the general topic of plant phylogeny without to some extent being under the influence of "Hutch", even if unknowingly.

The Genera of Flowering Plants, started in 1964, was a mammoth undertaking that would have daunted anyone less confident and enthusiastic than Hutchinson. It was no less than a descriptive account of all the genera of flowering plants and was undoubtedly inspired by that great classic, the Genera Plantarum, by George Bentham and Sir Joseph Hooker, published in the 19th century. It is worth noting that Hutchinson was one of the few survivors who knew Hooker personally and indeed the first edition of the Families of the Flowering Plants bore a dedication to Bentham and Hooker, with a floral tribute from Hutchinson's own pen. Two volumes of The Genera of Flowering Plants have appeared and further material is in an advanced stage. As if this were not enough, in 1969 he published a further massive volume on the Evolution and Phylogeny of Flowering Plants.

To many people all over the world he represented the embodiment of one of the great traditions of British systematic botany. His kindly, paternal presence seemed part of Kew and not a few visitors counted it as one of the important moments of their visit just to have seen John Hutchinson at work.

LE FRÈRE ROLLAND-GERMAIN
25 octobre 1881- 3 septembre 1972

C'est à Longueuil, en 1905, que le frère Marie- Victorin eut le grand avantage de recontrer le frère Rolland-Germain, <<celui qui devait être, en même temps que son ami et son conseiller, un collaborateur très compétent et très dévoué>>. Les deux confrères se lièrent d'une profonde amitié, devinrent deux compagnons inséparables partageant une commune passion pour la botanique. Les jours de congé, ensemble, ils herborisèrent dans les environs de Longueuil d'abord, puis ils poussèrent un peu plus loin leurs excusions: Saint-Bruno, Boucherville, Saint-Hubert, Saint- Hilaire, Saint-Lambert, Verchères, etc. Le frère Rolland-Germain, méthodoque et persévérant, aidait son ami dans l'identification des plantes. Il fut le veritable initiateur de frère Marie-Victorin auquel il révéla les procédés scientifiques. Les vacances d'été permettaient aux deux botanistes d'explorer des régions de plus en plus éloignées, Oka, Saint-Jérôme, Beauport, Saint-Ferdinand d'Halifax, Sainte-Rose, Mont-Laurier, etc., où ils pouvaient bénéficier de l'hospitalité dans des collèges de la congrégation.

Le frère Marie-Victorin, malgré sa stature imposante, fut très tôt attaqué dans sa santé et toute sa vie durant dut limiter les efforts physiques trop exténuants. Le frère Rolland-Germain prit sur lui la grosse part de la << cuisine >> , c'est-à-dire du travail préliminaire qui consiste à prélever, à presser, à sécher les spécimens, à les monter, à les identifier.

Les deux botanistes entreprirent, tantôt seuls, tantôt accompagnés de quelques collègues ou confrères, l'étude d'entités géographiques plus éloignées que l'isolement a rendu plus intéressantes au point de vue biologique: l'Île aux Coudres, l'Île d'Anticosti, les Îles de la Madeleine, la Gaspésie, la baie des Chaleurs, le lac Saint-Jean, la Minganie, l'Abitibi, le Témiscamingue, etc. Ils poussèrent des pointes au Nouveau-Brunswick et dans la région des Grands-Lacs dans le but de comparer des florules locales ou de vérifier des hypothèses sur l'origine de la flore de la vallée du Saint-Laurent. Toutes ces expéditions exécutées au prix de grands efforts physiques de la part des deux botanistes, si l'on se rappelle les moyens du temps, mais combien fructueuses, se concrétisèrent par la publication de la Flore laurentienne en 1935.

Autour d'une personnalité si puissante que celle du frère Marie-Victorin des personnalités assez fortes paraissaient effacées et n'avaient pas la notoriété qu'elles mériteraient. Le frère Rolland- Germain ne demandait qu'à être le collaborateur effacé. La gloire de son ami et le plaisir de travailler lui suffisaient. Ce n'est pas minimiser l'oeuvre du frère Marie-Victorin que de dire que la majeure partie de cette oeuvre scientifique est le résultat d'un travail d'équipe. Pendant que le frère Rolland-Germain collectait les spécimens et les observations, triait, identifiait et classait, le frère Marie-Victorin organisait les expéditions, rédigeait les observations journalières, échafaudait les hypothèses et rédigeait les textes finals.

Pour le frère Rolland-Germain, la botanique était son domaine de prédilection et sur le terrain il possédait un flair et un sens d'observation très aiguisés. Mais il laisserait bien les autres utiliser ses découvertes et récolter des lauriers. Le frère Marie-Victorin tenta l'impossible pour sortir son compagnon de sa timidité foncière. Lui demander un mémoire, c'était lui infliger un pensum. Le frère Marie-Victorin se fit plus insistant et engagea son collaborateur à présenter les fruits de ses observations botaniques aux congrès annuels de l'Acfas. De 1933 à 1944, du premier congrès jusqu'à l'année de la mort du frère Marie-Victorin, le frère Rolland-Germain, présenta un total de vingt-neuf communications dont neuf en collaboration avec le frère Marie-Victorin.

La mémoire du frère Rolland-Germain subsistera dans le monde botanique. Des

dizaines de milliers d'exemplaires de ses récoltes sont conservés dans les herbiers du monde. Son nom restera attaché à quelques plantes qu'il a décrites. Il reçut en 1949 la médaille Marie-Victorin, réservée à ceux qui contribuent le plus à l'avancement de la botanique dans notre pays. L'Université de Montréal reconnut à son tour son mérite en lui décernant le titre de docteur Honoris causa en novembre 1955.

Nous ne pouvons mieux terminer cette bien imparfaite biographie qu'en relisant ce que le frère Marie-Victorin, lui-même, écrivait en 1935 dans la préface de sa Flore laurentienne.

<<. . . Sa pensée va tout d'abord à une collaboration d'un ordre particulier et très intime, qui durant trente années l'a inspiré et soutenu dans son labeur scientifique. Homme de large culture, botaniste éminent, observateur de premier ordre, le F. Rolland-Germain, f.e.c., a été associé à toutes les explorations botaniques de l'auteur. Sa résistence physique, son dévouement infatigable, sa profonde connaissance des identités et son remarquable esprit critique ont contribué largement au succès des travaux sur le terrain qui ont préparé la publication du présent ouvrage. Nous devons en particulier au F. Rolland-Germain, le plus clair de nos connaissances actuelles sur la flore de l'Ottawa inferieur. Si ce livre vaut quel-que chose, le F. Rolland-Germain doit en partager le merite.>>
Albert Legault

CLIPPING THE WINGS OF POWER

Ontario Hydro last year proposed the creation of a 500KV transmission corridor from Nanticoke to Pickering. This required a right-of-way 610 feet wide which would eventually contain five towers abreast and pass through the scenic green environments north of Toronto. The principal objections to this corridor related to the large number of towers, its location, probable environmental impact and lack of public consultation.

On June 22, 1972, Premier William Davis appointed Dr. Omand Solandt as a one-man commission to examine the controversial proposal.

During the course of the public hearings which resulted, two important admissions were made by Ontario Hydro relating to the probable environmental impact of the corridor:

a) that it had no studies or direct evidence to present to the Inquiry to justify its claim that their route was the best possible corridor between Nanticoke and Pickering.
b) that the only consultation Ontario Hydro had concerning this corridor with any municipality, government department or agency, or Conservation Authority, consisted of a letter from Hydro stating its proposal. At no time prior to July 31 (the beginning of the public hearings) were possible alternative routes mentioned to any municipality, government agency, Conservation Authority, or environmental group.

These admissions reveal the astonishing lack of any detailed examination relating either to identifying possible sensitive areas or to determining ways of minimizing probable environmental impact.

The Federation of Ontario Naturalists, in a submission to the inquiry, examined the three central aspects of power transmission in Ontario:

a) Ontario Hydro's procedure for defining corridor alignments;
b) the role of citizen groups in assessing the social, aesthetic and environmental impact of new transmission corridors;
c) the role of Ontario Hydro's advertising campaign accelerating the demand for electric power.

Their basic criticism of Hydro's procedure for defining corridor alignments was that the office studies and queries conducted by Hydro were not sensitive enough to reveal the intensity of probable ecological impact. It was their contention, confirmed during the hearing, that Hydro's discussions with the Ministry of Natural Resources were more concerned with the locations of future parks and tree farms than with detailed environmental impact of statements or comparative analyses of the various route alternatives. Therefore, instead of revealing sensitive situations, the office study tended to suggest that all environments were equal in their capacity to withstand the intrusion of a transmission corridor, and therefore, that environment need not be a priority concern early in the planning process.

The F.O.N. recommended, therefore, that detailed field studies be conducted on all the broad band alternatives before any decision would be made as to the superiority of one alternative route over another. They further recommended that Ontario Hydro be required to establish a list of ecologically sensitive areas for each of the various broad band alternatives in order that future transmission corridors would transverse environments most capable of accommodating them.

The F.O.N. concluded its brief with a fresh argument against Ontario Hydro's advertising campaign. The most recent objection to Hydro's promotional efforts was that it encourages the belief that as long as we rely upon electric power for our energy needs, then the limits to growth have been removed and the good life will continue to be ours. The F.O.N. criticized recent advertisements such as Triple Sure which attempted to convince the reader that the energy crisis had been solved by nuclear technology and that unlimited amounts of power were now available from "strong economic growth and continuing improvement in the quality of life." They also questioned the assumption in these advertisements that the limiting constraint of a rising quality of life is the amount of available energy by referring to the Club of Rome Report and its conclusions concerning the necessity of achieving a state of global equilibrium. The F.O.N. suggested therefore, that an advertising programme encouraging people to use less power rather than more, would more realistically respond to the needs of Ontario since such a programme would not provide opposition to the needs of a steady state economy.

The Solandt Commission Report has been accepted by the Ontario Cabinet. The principal recommendation of the report was that detailed environmental studies must be conducted over the entire study area before any decision is made as to the best possible route for the Nanticoke to Pickering transmission corridor. This requirement that Ontario Hydro must now prove its contention that it has found the route of least environmental impact, not only advances the quality of future environmental planning by Hydro, but also ensures that Ontario Hydro will

no longer be allowed to unilaterally decide what the trade offs will be for future transmission corridors. That decision will now be made by the Ontario Government, after close consultation with the public-at-large. Abstracted from the F.O.N. Newsletter Vol. 13, No. 6.

THE MACKENZIE HIGHWAY

The Federation of Ontario Naturalists has expressed to the Government of Canada the unanimous opinion of its Board of Directors with respect to Government activity in northern Canada. In a letter to the Honourable Jean Chretien, Minister of Indian Affairs and Northern Development, F.O.N. President John A. Livingston urged the immediate abandonment of the proposed MacKenzie Valley highway, condemned the decision to build such a highway in the absence of prior environmental impact studies, and deplored the difficulties "encountered by the Canadian public in its attempts to become informed on Government planning and decision-making with respect to the north."

The MacKenzie highway was begun, Livingston said, "in the apparent absence of any serious attempt to carefully survey and assess the potential environmental impact of such construction in advance of the decision to commence". That decision, he said, was undertaken "in the absence of any demonstrated (much less publicly evaluated) need" for such a highway.

The F.O.N. letter to Mr. Chretien emphasized the need for public information in advance of planning decisions for the north. "This process of public information must include general access to the results of all such scientific investigations as may already have been conducted in the arctic and subarctic, and may be proceeding at the moment. Only in this way can Canadians be assured full and continuing participation in decisions regarding their national heritage".

MYCOLOGICAL NOMENCLATURE

Mycologists and lichenologists should note that a standing Nomenclature Committee has been established by the International Mycological Association to study specific problems in the application of the Code of Nomenclature to fungi (including lichen-forming species), and to propose changes in the Code at the 1975 Botanical Congress. Actively interested persons are encouraged to serve on one or more Special Committees, each devoted to study of a specific problem. Five areas of concern have already been identified at the First International Mycological Congress in Exeter in 1971; these Special Committees are being organized now, and mycologists willing to serve on these Committees should notify the Nomenclature Secretariat as soon as possible so that they may be appointed as members: (1) Revision of Art. 59 on pleomorphic fungi; (2) Designation of living materials as types in fungi; (3) Registry of new names and of proposals for conservation; (4) Unification of starting-point dates and problems of overlap of groups with different starting dates; (5) Provision for handling infraspecific taxa not now covered by the Code. Other problems that deserve study should be brought to the attention of the Secretariat, which may then establish additional Committees to study such problems.

Mycologists may correspond with any member of the Secretariat for further information, or to contribute opinions on any problems of nomenclature. Those desiring to propose their names for membership on Special Committees should notify the Chairman of the Secretariat.

I.M.A. Nomenclature Committee Secretariat:

R.P. Korf (Chairman), Plant Pathology Herbarium, Cornell University, Ithaca, N.Y. 14850, USA

D.L. Hawksworth, Commonwealth Mycological Institute, Ferry Lane, Kew, Surrey TW9 3AF, England

G.L. Hennebert, Lab. Mycologie Syst. et Appl. U. C. L., Parc d'Arenberg, B-3030 Heverlee, Belgium

Z. Pouzar, Botanical Institute, Academy of Sciences, 252 43 Pruhonice near Praha, Czechoslovakia

D.P. Rogers, Department of Botany, University of Illinois, Urbana, Illinois 61801, USA

L.K. Weresub, Plant Research Institute, Central Experimental Farm, Ottawa, Ontario, Canada

THE CHONDRUS CRISPUS SYMPOSIUM

The symposium on Irish moss which was held at Dalhousie University during the CBA-CSPP meetings last June is due to be published this spring. The volume, entitled 'Chondrus crispus' is edited by M.J. Harvey and J. McLauchlin and contains articles on physiology and biochemistry, ecology, biology, chemistry, cytology and genetics, and ultrastructure and histochemistry. In addition there is a comprehensive bibliography. The volume is dedicated to Constance MacFarlane and E.G. Young for their contribution to Chondrus crispus in particular and the study of seaweeds in general. The book is being published by the Nova Scotian Institute of Science as a special supplement to their Proceedings. It will contain about 250 pages and can be obtained by writing to NSIS, c/o Science Library, Dalhousie University, Halifax, N.S. Price will be $6.00 softback, $9.00 hardbound.

2nd INTERNATIONAL CONFERENCE ON PERMAFROST

North American discussions on the Conference took place in Vancouver, B.C., CANADA, where U.S. and Canadian Planning and Organizing Committees met. Seven themes of the Conference, upon which all submitted papers will be based, are as follows:

1. Thermal aspects of permafrost formation and evolution
2. Regional distribution and characteristics of permafrost
3. Genesis, composition, and structure of frozen ground and ground ice
4. Physics, physical chemistry, and mechanics of frozen ground ice
5. Ground water in permafrost regions
6. Surveying and predicting of permafrost conditions
7. Principles of construction in permafrost regions

CONTACT: Dr. Troy Peve, Chairman, Committee for International Environmental Programs, 2101 Constitution Avenue, Washington, D.C.20418, U.S.A.

1st INTERNATIONAL CONGRESS OF ECOLOGY

The announcement of this Congress, to be held in September 1974 was contained in the January Bulletin. During the IBP General Assembly meeting held in Seattle, Washington, USA, 4-6 September 1972, topics were announced for the IBP afternoon Symposium which will be held in coordination with the Congress.

IBP afternoon topics will coincide with the five morning sessions of the Ecology Congress.

Ecology Congress Morning	IBP Afternoon Symposium
1. Flow of energy and matter between trophic levels	Freshwater, brackish and marine ecosystems-then similarities and differences at all trophic levels
2. Comparative productivity in ecosystems	Global geography of biological productivity
3. Diversity, stability and maturity in natural ecosystems	The evolution of ecosystems and its contribution to biogeography and evolutionary theory
4. Diversity, stability and maturity in systems influenced by human activites	Stable and unstable ecosystems with man as an integral component in different climatic zones
5. Strategies for management of natural and man-made ecosystems	Prediction of ecosystem response to human intervention

Suggested chariman for each of the afternoon topics are as follows: 1. Kenneth Mann (alternate: Gordon Riley), 2. L.E. Robin (alt. John Steele and P.G. Jarvis), 3. Harold Mooney and Max Dunbar, 4. M. Evenari and T. Monod, 5. David Goodall (alt. F.F. Wielgolaski). Dr. Frank Blair, USA was elected chairman of the organizing committee with Drs. Max Dunbar, CANADA, and A.R. Clapham, UK.

THE IX.CONGRESS OF THE INTERNATIONAL UNION FOR QUATERNARY RESEARCH (INQUA)

will meet in New Zealand in 1974. Many botanists will be interested in participating in this meeting. The congress is interdisciplinary in scope with symposia, contributed paper sessions and field excursions to various parts of New Zealand, Australia and New Guinea. The purpose of the International Union for Quaternary Research (INQUA) is to bring together on a worldwide basis scientists in all disciplines concerned with the history of man's environment, and with the processes by which environment and man's relation to environment have evolved.

FILMS

A "Catalogue international de films sur les sciences de l'eau" has been prepared by Mr. A. J. Drapeau. It includes information on more than 600 films in the fields of water pollution, water cycle, environment, conservation, resources, ecology, etc., grouped by alphabetical order, title index, and by subjects and themes (Cerdeau-Films, Genie de l'environnement, Ecole polytechnique, 2500 Marie-Guyard St., Montreal 250, P.Q.).

THE BRITISH NATURE CONSERVANCY

The connection of the British Nature Conservancy with the Natural Environment Research Council is being severed, consequent upon the reorganization of Government financed scientific research. However, the former research branch of the Conservancy is to be retained with N.E.R.C. In addition to personnel, this involves research stations-notably, in Scotland, those at Edinburgh (special concern-wetlands) and at Banchory near Aberdeen (special concern-mountains and moorlands). There is much debate amongst ecologists both with and outside these organisations as to the merits of this reorganisation, and as to the mechanism whereby in future the Nature Conservancy will have to contract for the research required in connection with its roles in management of Nature Reserves and provision of advice for land use and conservation.

WWF/IUCN

The World Wildlife Fund and the International Union for Conservation of Nature recently announced their priorities for world nature conservation: 1. Conservation of endangered habitats in a number specific regions; 2. Conservation of threatened groups of animals and plants, including regulation of trade; 3. Environmental monitoring of biological parameters, environmental planning and policy, law and administration; 4. Promotion of programmes of conservation education; 5. Conservation programmes in key areas or countries.

The W.W.F. has established a Special Fund for Biotope Acquisition, designed to set aside land in its natural state for conservation and for scientific, cultural, educational, aesthetic and economic purposes.

THE UNIVERSITY OF MANITOBA FIELD STATION (DELTA MARSH)

Activities - Summer 1973

RESEARCH

A full an varied programme is planned including the following projects:

Dr. T. Booth -
"Researches on Aquatic Fungi"

Dr. R. Longton -
"An investigation of growth of selected marsh species; their role in succession with changing water levels and productivity with varying environmental conditions"

Dr. D. Punter -
"Fungal succession on aerial portions of emergent aquatic plants"

Dr. G.G.C. Robinson -
"Investigation of dissolved organic materials in Southern Lake Manitoba"

TEACHING

Four two-week one-half credit courses are being offered:

July 8 - July 20	
Introductory Ecology	22.229/1.336
July 22 - August 3	
Animal Ecology	22.334
August 7 - August 17	
Ornithology	22.XXX
August 7 - August 17	
Plant Ecology	1.452

ADULT EDUCATION

In conjunction with the Extension Division - Community Studies Department, a series of weekend courses are being offered;

May 4 - 6 *Wildlife Photography*
Mr. R. Taylor - Museum of Man and Nature
May 18 - 20 *Bird Populations*
Dr. R. Jones - Delta Waterfowl Research Station
June 1 - 3 *Pond Life*
Mr. B. Newsom - Department of Zoology
June 8 - 10 *Painting Wildlife*
Mr. J. Carson - Museum of Man and Nature
August 24 - 26 *Aquatic Flowering Plants*
Dr. T. Booth - Biology Teaching Unit
September 21 -23 *Marsh Ecology*
Dr. Jennifer Shay - Department of Botany
Further details can be obtained from the Acting Director, Dr. J. Gee, Department of Zoology or Mr. B. Wallis, University Field Station, c/o Department of Botany, University of Manitoba, Winnipeg, Manitoba R3T 2N2. Dr. J. Shay is on sabbatical leave at the Department of Botany, University of Cambridge, England and will return September 1, 1973.

MISCELLANY

Notre Dame University of Nelson, B.C. is to award an Honorary D.Sc. to Dr. V.J. Krajina at it forthcoming convocation on May 6th.

The 1973/74 academic year in the University of Alberta Botany Department saw the return of Drs. S.K. Malhotra and G.H. La Roi. Dr. Malhotra had been working towards the development of the School of Life Sciences in Jawaharlal Nehru University, New Delhi. Dr. La Roi spent part of his sabbatical at Yale (School of Forestry) and part working in Fenno-Scandia; Uppsala, Sweden and Western USSR.
At present Dr. E.A. Cossins is on sabbatical leave at Institute de Botanique Universite de Geneve, Switzerland working on regulatory mechanisms in the metabolism of pteroylglutamate derivatives in fungi.
In Novermber 1972, Dr. Cossins was elected to active membership in the New York Academy of Sciences.
Dr. D.H. Vitt has recently been on an N.S.F. sponsored expedition to the Subarctic Auckland Islands, studying the Cryptogamic flora of these islands.

Dr. Job Kuijt of the University of Lethbridge Alberta reports that the Agricultural Research Council (Gt. Britain), Weed Research Organization, Oxford, England, is organizing a symposium on "Parasitic Weeds", for the European Weed Research Council, at the Royal University of Malta from 11-13th April, 1973. Dr. David R. Dobbins (now at Wellesley College, Mass.) and he will be presenting a paper on their light and electron microscopy work on the haustorium of Castilleja (Scrophulariaceae). This work was carried out at the University of Lethbridge over the past two years.
He will also be presenting a paper on the young primary haustorium of Phthirusa (Loranthaceae) at the joint meeting (Nijmegen, Holland, Feb. 28 - March 2) of the Royal Botanical Society of the Netherlands and the Deutsche Botanische Gesellschaft.

RATIONALIZE RESEARCH, UNIVERSITIES TOLD

Canadian universities must rationalize their research; but the rationalization should not be imposed from the top down-it should involve the individual faculty member.

These were key points of Quest for the Optimum: Research in the Universities of Canada. It is the report of a commission established in 1971 by the Association of Colleges and Universities in Canada (AUCC) and headed by Louis-Philippe Bonneau, of Laval, and James Alexander Corry, of Queen's; it is commonly called "Bonneau/Corry".

Bonneau/Corry concedes the importance of research to universities but it urges the development of "firm coherent research policies" within which individual researchers would have freedom to select their own projects. In developing these broad policies, however, each individual university must relate to other universities. . .there should be co-ordination of research effort.
This rationalization will come into effect in connection with research at the Ph.D. level.

Thus the report comes down heavily against "undue proliferation of PhD programs".

The report makes a distinction between "frontier" research and "reflective inquiry". Frontier research is defined as exploration on the frontier of knowledge. . .looking for new facts and new phenomena. Reflective inquiry is essentially an intellectual activity which seeks the significance of facts and phenomena already known, and the relation of these to human interests or to a larger understanding of the world.

Frontier research is described as not always essential to undergraduate teaching and in fact, sometime in conflict with this activity. Reflective inquiry is, however, vital for teaching at all levels. The report urges universities to "remove the premium" (promotions and salary increases) from frontier research. It also notes there should probably be more applied research within the universities.

Major recommendations of Bonneau/Corry may be summarized as follows:

1. Accordingly, we recommend for at least an experimental period, rather stiffer assessment of applications for research grants by the federal funding agencies. We think it should be an experimental period and not a permanent change in policy.

* * *

2. We recommend that universities recognize the distinction we made between frontier research and reflective inquiry, and accept the consequences which will be described later.

* * *

3. We believe that each university should set its own objectives in research (subject to the limits on the use of funds impressed with a mission) bearing in mind and exploring with governments and other universities its obligations to the world of learning, to the diverse interests and needs of students, of the local community, and of the nation.

* * *

4. We approve the view widely expressed within universities that the main focus of the universities in research should be on basic research. Despite recent suggestions to the contrary, we believe that a very substantial commitment to basic research is vital to the progress and welfare of the country and to the quality of the work universities do.

* * *

5. In the light of all these considerations relating to effective teaching to the problems of small universities, and to centres of excellence, we recommend that the universities revise their policies on promotion and salary increases to ensure that the same weight is given to undergraduate teaching and reflective inquiry as is given to frontier research and teaching and supervision of graduate students.

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6. Every university should have a fund for supporting out-of-pocket costs of reflective inquiry from which grants would be made on applications for special purchases such as books or journals urgently needed for a project, for short visits to other better equipped libraries, or for short-term research assistance.

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7. We recommend that the Canada Council continue its support of research in the humanities and social sciences on a program which would give greater emphasis to projects in reflective inquiry.

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8. Instead, we suggest an effort by the Government of Canada, in consultation with Canada Council and SSRC to select experimentally seven to nine graduate schools across the country that have shown really good quality in graduate work in at least two of the main social science disciplines. Care would have to be taken that all the main disciplines in the social sciences were represented by strength somewhere in these graduate schools. This would make possible a quicker start, would do something like justice to regional aspirations, and would prevent putting too many eggs in too few baskets.

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9. So we recommend that the federal granting agencies make payments to the universities designed to cover the indirect costs of the research they sponsor, including salaries, that, failing a federal-provincial agreement on an alternative figure, these be set at 45 per cent of the amount of each grant, and paid as contributions to the general revenues of the universities. Additional sums to cover those amounts should be added by the federal government to the annual votes of funds for the three funding agencies.

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10. We recommend that universities of the middle and larger size should provide themselves with a research office; it would fix on someone the continuing responsibility of studying the conditions necessary for research work of good quality.

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11. To sum up, we recommend that university institutions foster all these major moves towards co-ordination, which we have just described and which are already under way, with a view of rationalizing research collections in the university libraries, and that they work together actively for co-ordination at the national level.

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12. We do recommend, however, that the federal councils consider setting aside a small percentage of their funds to be used as risk capital in the field of research rather than committing it all to prudent investment in stocks that give high promise of dividends.

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13. There will have to be special attention given on a national basis by the federal government to selecting across the country centres of specialization, recognizing, and helping to build up in them, first class research competence in a limited number of departments and/or faculties. They cannot be centres of excellence in the full sense (as defined above) because of the limited range high competence they can achieve in the near future. This is what all middle-sized universities, and some larger ones, will have to be content with, in the category of frontier and regional aspirations can be encouraged and nourished at the same time. It is possible for such centres of specialization, through careful development, to reach international stature in limited areas.

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14. While recognizing that effective work and collaboration are often easier when everyone involved is at home in one and the same language, we do nevertheless recommend that quite deliberately, in pursuit of high national purpose, we should attempt to establish in Canada some centres of research based on substantial contribution from the two main cultural groups.

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15. In summary, the strategy we recommend for rationalization of university research has the following elements (1) particular universities seeking to articulate policies and objectives for themselves which keep in mind local, provincial and national problems that research can help to solve, (2) time limits set on the discussions for this purpose at and between the several universities, (3) enough limits on the flow of research funds to make it imperative to plan the best use of scarce resources, and keep the universities in a locality or region straining to cooperate and co-ordinate on this basis, (4) provincial governments identifying areas of research of special interest to them, offering some inducements to take them up, (5) efforts at the national level by the federal government, federal funding agencies, and discipline associations in the several disciplines to identify areas needing research, to define and list projects, to stimulate the competent to undertake them on terms and inducements that favor development of centres of excellence and centres of specialization.

* * *

16. We recommend that, in co-operation with the National Library, and the National Science Library, AUCC make a sustained effort to see to the establishment of a national index of on-going research. It would be a very important part of the network of sources of information which the universities need to rationalize their research effort effectively.

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ORIENTED RESEARCH URGED

Oriented basic research-yes. Laissez-faire basic research-no.

This is the major recommendation of the Science Council of Canada in its report on Policy Objectives for Basic Research in Canada (Report No. 18) issued last September.

In advocating a concentration of basic research effort towards areas of research of particular importance to Canada, the authors of the report, the Science Council Committee on Basic Research urge the implementation of both an internal set of criteria (e.g. "peer" group evaluation) and an external set of criteria which would relate to special Canadian requirements.

If the criteria are applied objectively, the Council believes the following policy objectives could be achieved:

Developing Canadian experts who are members of the international community of scientists.

Making special contributions to the generation of basic knowledge in the fields in which our particular interests cannot be met to a sufficient degree elsewhere.

Maintaining the quality of higher education and exerting positive influence on R & D activities in general.

The Council defines basic research as original investigation undertaken to gain new knowledge with the primary purpose of contributing to the conceptual development of science. In differentiating between "free" Basic Research and "oriented" basic research, it regards "free" research as that in which the original impluse comes mainly from scientific curiosity whereas in oriented research, the investigation is directed towards the definition and solution of fundamental technical or scientific problems in a general area of interest. Applied research is regarded as original investigation undertaken to gain new scientific knowledge with the primary purpose of applying it to solve practical or technical problems.

In suggesting a change of emphasis for basic research, the Science Council, however, states that its earlier recommendations in favor of more applied research should not be adopted at the expense of basic research.

"Research is an indispensible element of a university for the development of both teachers and students," states the report. "Canada must have its share of highly creative scientists. Canada, by making a fair contribution to international science, acts in her own best interest."

The major problem, as seen by the Council, is to define the "fair share" and to determine criteria for selecting the level of support in major fields of activity and for the granting of support to specific projects.

In suggesting both internal and external criteria, the Council asks that granting policies be of a broad nature with a minimun of "intermediate paper work".

Universities, as repositories of the nation's knowledge, should give priority to advancing knowledge in directions of particular concern to the nation, with special regard to the concerns of their region or province, states the report in suggesting that universities should be in sympathy with the concept of oriented basic research.

In discussing the degree of concentration of university research, the report cites a need for concentrating research work in a given field in "centres of strength" to permit the interaction of personnel and the provision of better facilities. Admitting that this is contrary to the educational need for some research at most departments of all universities, the Council says that pragmatic solutions must be found, without discriminating against smaller universities or colleges.

This may mean transferring more research from government to universities; concentration through multidisciplinary co-operation; setting up leadership and co-ordination, with team members located in various institutions; use of research opportunities outside universities, with formal academic recognition of such research; and giving more recognition to research aimed at systemization of existing knowledge rather than discovery.

The report also suggests the possibility of setting up mission oriented interdisciplinary institutes as autonomous research bodies located on a campus and retaining university affiliation to permit graduate students to be involved.

The complete report is available from Information Canada, Ottawa and through booksellers. The price is $1.

This article is taken from the University of Waterloo GAZETTE Vol. 13, No. 6.
Dr. Eydt referred to the Science Council Report in his article "Biologists Awake!" published in the January Issue of this Bulletin.

DECLARATION ON THE HUMAN ENVIRONMENT

Stockholm, June 16, 1972. The following is the statement of principles from the Declaration on the Human Environment adopted by the United Nations Conference on the Human Environment:

1. Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality which permits a life of dignity and well-being, and bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.

2. The natural resources of the earth including the air, water, land, flora and fauna and especially representative samples of natural ecosystems must be safeguarded for the benefit of present and future generations through careful planning or management as appropriate.

3. The capacity of the earth to produce vital renewable resources must be maintained and wherever practicable restored or improved.

4. Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat which are now gravely imperiled by a combination of adverse factors. Nature conservation including wildlife must therefore receive importance in planning for economic developments.

5. The nonrenewable resources of the earth must be employed in such a way as to guard against the danger of their future exhaustion and to insure that benefits from such employment are shared by all mankind.

6. The discharge of toxin substances or of other substances and the release of heat, in such quantities of concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to insure that serious or irreversible damage is not inflicted upon esosystems. The just struggle of the peoples of all countries against pollution should be supported.

7. States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

8. Economic and social development is essential for insuring a favorable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life.

9. Environmental deficiencies generated by the conditions of underdevelopment and natural disasters pose grave problems and can be remedied by accelerated development through the transfer of substantial quantities of financial and technological assistance as a supplement to the domestic effort of the developing countries and such timely assistance as may be required.

10. For the developing countries, stability of prices and adequate earnings for primary commodities and raw material are essential to environment management since economic factors as well as ecological processes must be taken into account.

11. The environmental policies of all states should enhance and not adversely affect the present or future development potential of developing countries, nor should they hamper the attainment living conditions for all, and appropriate steps should be taken by states and international organizations with a view of reaching agreement on meeting the possible national and international economic consequences resulting from the application of environmental measures.

12. Resources should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and any costs which may emanate from their incorporating environmental safeguards into their development planning and the need for making available to them, upon their request, additional international technical and financial assistance for this purpose.

13. In order to achieve a more rational management of resources and thus to improve the environment, states should adopt an intergrated and coordinated approach to their development planning so as to insure that development is compatible with the need to protect and improve the human environment for the benefit of their population.

14. Rational planning constitutes an essential tool for reconciling any conflict between the needs of development and the need to protect and improve the environment.

15. Planning must be applied to human settlements and urbanization with a view to avoiding adverse effects on the environment and obtaining maximun social economic and environmental benefits for all. In this respect projects which are designed for colonialist and racist domination must be abandoned.

16. Demographic policies, which are without prejudice to basic human rights and which are deemed appropriate by government concerned, should be applied in those regions where the rate of population growth or execssive population concentrations are likely to have adverse effects in the environment or development, or where low population density may prevent improvement of the human environment and impede development.

17. Appropriate national institutions must be entrusted with the task of planning, managing or controlling the environmental resources of states with the view to enhancing environmental quality.

18. Science and technology, as part of their contribution to economic and social development, must be applied to identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind.

19. Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. It is also essential that mass media of communications avoid contributing to the deterioration of the environment, but on the contrary, disseminate information of an educational nature and the need to protect and improve the environment in order to enable man to develop in every respect.

20. Scientific research and development in the context of environment in the context of environmental problems, both national and multinational, must be promoted in all countries, especially the developing countries. In this connection, the free flow of up-to-date-scientific information and experience must be supported and assisted, to facilitate the solution of environmental problems: environmental technologies should be made available to developing countries on terms which would encourage their wide dissemination without constituting an economic burden on the developing countries.

21. States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to insure the activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

22. States shall cooperate to develop further the international law regarding liability and compensation for the victim of pollution and other environmental damage caused by activities

within the jurisdication or control of such states to areas beyond their jurisdiction.

23. Without prejudice to such general principles as may be agreed upon by the international community, or to the criteria and minimum levels which will have to be determined nationally, it will be essential in all classes to consider the systems of values prevailing in each country, and the extent of the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries.

24. International matters concerning the protection and improvement of the environment should be handled in a cooperative spirt by all countries, big or small, on an equal footing. Cooperation through multilateral or bilateral arrangements or other appropriate means is essential to prevent, eliminate or reduce and effectively control adverse environmental effects resulting from activities conducted in all spheres, in such a way that due account is taken of the sovereignty and interests of all states.

25. States shall insure that international organizations play a coordinated, efficient and dynamic role for the protection and improvement of the environment.

26. Man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons.

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THE CBA/ABC BULLETIN

Where to write:

Change of address; information on membership of the Canadian Botanical Association; general correspondence relating to the Association --

Dr. Mary E. Elliot, Plant Research Institute, Central Experimental Farm, Ottawa, Ontario, K1A 0C6.

Payment of subscriptions:

Dr. G.A. Mulligan, Plant Research Institute, Central Experimental Farm, Ottawa, Ontario, K1A 0C6.

Material for the Bulletin:

Dr. J.K. Morton, Department of Biology, University of Waterloo, Waterloo, Ontario, N2L 3G1.

POSITIONS AVAILABLE

The National Research Council of Canada requires a BIOLOGIST to serve as Supervising Editor for Biology Journals.

In a program of scientific publishing, the National Research Council of Canada issues 10 Research Journals. Manuscripts are assessed for scientific merit by a Scientific Editor; those accepted are sent for publishing to the Production Office (Editorial Department) in Ottawa. Under the Editorial Department Manager, three Supervising Editors are responsible for journal production, and the opening is for a Supervising Editor for NRC's Research Journals in Biology.

Duties:

Responsibility for the production of the Canadian Journal of Botany, Canadian Journal of Microbiology, and Canadian Journal of Zoology, which includes supervision of a small staff of Publication Assistants, all university graduates in Biology. Their editorial work consists of reading manuscripts for consistency, presentation of scientific details, language construction, etc.; marking manuscript copy for the printer; preparing illustrations for engraving; checking proof; and maintaining liaison with the scientific editors, with authors, and with the printer.

Qualifications:

Ph.D. in one of the major fields of biology; current awareness of biological literature; interest in and aptitude for the art of language; interest in active participation in the communication of scientific information in biology.

Candidate with five to twelve years post-doctorate experience are preferred.

Salary:

Commensurate with qualifications.

Apply in writing giving complete details of education and experience to the Employment Officer, National Research Council of Canada, Ottawa, Ontario, K1A OR6. In reply please quote competition RJ-112.

Canadian citizens will have preference.

AN APPEAL FOR INFORMATION

During the last couple of years I have tried to assemble information on species of vascular plants which are in danger of extermination in Canada, either due to human or other activities. My efforts have been remarkably unsuccessful and it would appear that the Canadian flora is in an exceptionally healthy condition - a state of affairs which I find hard to believe! If any of our readers know of a species which is endangered in their area I would be very grateful if they would write to me about it, so that a comprehensive list of endangered species can be compiled and kept up-to-date. The existence of such a list is of particular importance in these days when industrialization, urbanization, agriculture and transport systems are making such rapid inroads into our remaining natural habitats.

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