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Préparez-vous

1978

Plan ahead

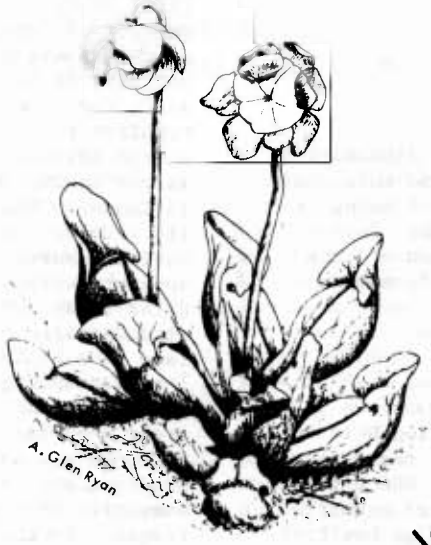
CBA/ABC

ANNUAL MEETING CONGRÈS ANNUEL

13-17 August août in/à

NEWFOUNDLAND
TERRE-NEUVE

MEMORIAL UNIVERSITY



Sarracenia purpurea

Come and see us!

Nous vous attendons!

NEXT YEAR'S MEETINGS
1978 CBA/ABC Annual Meeting/Congrès Annuel -- Preliminary Notice

The 1978 CBA/ABC Annual Meeting will be held in St. John's, Newfoundland, at Memorial University, on 13-17 August. The main theme of the meeting will be "The Subarctic". A 3-4 day pre-meeting field trip in western Newfoundland is being organized, in addition to shorter trips out of St. John's. The pre-meeting field trip will begin in Corner Brook and end in St. John's on the evening of August 13. This trip will include sites with many artic/alpine species and also the large serpentine areas with their distinctive flora. The local trips out of St. John's will include visits to Oxen Pond Botanic Park, being developed by the University as a place where native Newfoundland plants can be grown in as near natural habitats as possible, the Agriculture Canada Research Station, southeastern alpine areas, and a marine trip to the nearby coast. The herbaria will be available for pressing plants, (both terrestial and marine), and an effort is being made to have divers available to collect subtidal marine algae.

In addition to contributed papers some sections of the association may organize their own symposia or groups of papers on a selected topic. The photo salon and student competition will both be held. A number of social activities (some involving Screech) are being planned.

Full details of the meeting will appear in the January issue of the Bulletin.

NEWS FROM THE SECTIONS

Officers of the Sections

Ecology Section - Executive Committee:
J.S. Maini - Chairman (1975-78)
J. Walker-Shay - Secretary (1977-78)
Robert Ogilvie (1976-79)
Paul Maycock (1976-79)
Mohan Wali (1976-79)
Al Gordon (1977-80)

Systematics and Phytogeography Section - Executive Committee:
J.M. Gillett - Chairman
Mary Barkworth - Secretary
D.M. Lindsay
D. Woodland
A. Legault
J.K. Morton

The Phycology Section was formally disbanded at its meeting held in Winnipeg in June this year. The General Section is in process of being reorganized under the initiative of Dr. Taylor Steeves. At the time of publication of this issue of the Bulletin we had no information relating to the Mycology Section.

The Ecology Section

At the 1976 annual general meeting held in Lennoxville, the members of the ES requested that a member with experience with NRC $-granting committee should prepare a brief report on the process and provide guidelines on how best to prepare a submission. Dr. Paul Cavers has agreed to do this and submit a brief report for publication in the CBA Bulletin.

A list of consultants in the field of environment: Members indicated interest in up-dating a list prepared earlier (re CBA Bulletin April 1971). The chairman is attempting to obtain a list of consultants registered with the Dept. of Supply & Services, Gov't of Canada, before initiating a membership-wide survey.

At the 1977 meeting at Winnipeg the following suggestions were made:
- Membership on the NRC grant-giving committees should be rotated to provide experience to more persons.
- The theme "Ecological Impact of Energy Development in the North" be considered for the Newfoundland meeting.
- Concern was expressed on a lack of active participation by ES members. The ES executive was asked to stimulate greater participation by ES Members and by ES in CBA activities.

J.S. Maini

The Systematics & Phytogeography Section

Fifteen members attended the annual general meeting of the section held during the CBA/ABC meetings at Winnipeg this year. Discussion centered around proposals for a renewed Flora North America project and for biological surveys of Canada's flora and fauna -- the following is extracted from the minutes of the meeting:

Flora North America project. After discussion members supported a proposal for a new and revised FNA project and suggested that Canada participate in the formulation, establishment and implementation of the project. The following resolution to the CBA executive committee was approved:-

"The S and P section supports the creation of a new and revised Flora of North America project and would welcome the opportunity of participating in its initial planning and implementation."

The S and P section requests the CBA executive committee to convey to Canada MAB the support of the association for the establishment of a FNA programme within Canada MAB and to indicate willingness to recommend the names of people to serve on a MAB FNA committee.

Pilot study for a biological survey of the insects of Canada. The Entomological Society of Canada has been given a contract by the Department of Supply and Services for this pilot study for a period of 18 months. The contract requires that the study include giving guidance on the advisability of expanding the biological survey to include all animal and plant groups in Canada. The CBA has been asked to indicate its interest in and support for undertaking national surveys for the plant kingdom and to appoint representatives to discuss with the Pilot Study Sub-committee the advantages and disadvantages of including other groups of organisms in a biological survey.
The proposals generated some discussion and there was general agreement that there was a great need for survey work on plants in the form of local and national lists, endangered species studies, and taxonomic revisions. The new executive of the S and P section was asked to transmit to the CBA executive its support for the proposals and to recommend the names of 2 persons to serve as representatives.

PRESENTATION OF A GEORGE LAWSON MEDAL

At our annual general meetings, held in Winnipeg in June of this year, our retiring president, Dr. Wilson Stewart, presented a George Lawson Medal to Dr. Harold Brodie. The following is the address given by Dr. Stewart in presenting the medal.

A few of you present today were involved in establishing the George Lawson Award under the auspices of the Canadian Botanical Association/ L'Association Botanique du Canada, and you know something of its importance. Some others have been involved in selecting and approving the nominees for this award and are fully aware of the high standards required to qualify for it. Most of you here today, however, know little of its significance and I think it appropriate as have others who have made this award on previous occasions, to take some time to tell you about the award before introducing you to this year's recipient.

The award was established by the Association in 1968, "to provide a collective, formal expression of the admiration and respect of botanists in Canada for excellence in the contribution of an individual to Canadian Botany."

The medal is named after Dr. George Lawson who is generally considered to have been the first professional botanist in Canada. In the year after he received his Ph.D. in Germany he became Professor of Chemistry and Natural History at Queen's College, Kingston. This was in 1858. By 1860 the Botanical Society of Canada had been established and the first meeting was held in Dr. Lawson's classroom at Queen's. The following year Dr. Lawson was responsible for the start of Canada's first botanical garden in Kingston. Later, after moving to Dalhousie University he became a founding member of the Royal Society of Canada which, under Dr. Lawson's guidance established the Botanical Club of Canada. This organization was operational until 1910. During his active career of some 37 years at Dalhousie, Dr. Lawson wrote nearly 100 papers dealing with botanical subjects; in addition he taught courses in chemistry, mineralogy, as well as zoology and botany. He was a very versatile and productive scholar indeed, and certainly well chosen as the individual whose likeness is cast in bronze and mounted on this plaque.

Presentation of a George Lawson Medal to Dr. Harold J. Brodie by CBA/ABC President Dr. Wilson N. Stewart.

The recipient of the award also must be a highly productive and versatile scholar. The criteria for selection of the candidates are set forth in the by-laws of the Association which describe two categories within which the Lawson Medal may be awarded. This year the award is being made to one individual who qualifies equally well in either of the two categories. The basis for the first category is a single outstanding contribution to botanical knowledge - this may be in the form of a book, series of papers, or even a single paper of great merit. The second category recognizes the cumulative distinguished contribution of a senior investigator who has made noteworthy advances in the discipline of Botany in Canada.

The recipient of this year's award is Dr. Harold J. Brodie for an outstanding contribution to botanical knowledge.

You can say without exaggeration that my good friend and colleague, Harold Brodie has "come home" to receive the high honour our Society wishes to bestow. Dr. Brodie is a native of Winnipeg - born here in 1907. After receiving his primary and secondary education in the Winnipeg school system he continued on at this University to earn the B.Sc. degree in 1929. With the completion of his Ph.D. at the University of Michigan in 1934, he returned to Canada, serving as lecturer in Botany at Macdonald College. Then, in 1937 he returned to his alma mater as Assistant Professor of Botany, progressing through the ranks to Professor of Botany during the ensuing years. After straying across the border to the University of Indiana to stay for approximately 10 years, Canada once again called and provided the base for his academic career, this time at the University of Alberta

for a period extending from 1957-1969. Here he served as Professor of Botany and Head of the Department. Upon retirement the honour of Emeritus Professor was awarded in 1970. He now resides in Victoria with his wife Mary who is with us today on this happy occasion.

It is impossible in the time allotted to tell you all of Harold Brodie's accomplishments as researcher, scholar, teacher and a friend of people everywhere. So I summarize:

His research publications number 87 plus a major book "The Bird's Nest Fungi", and numerous other publications, popular lectures and radio programs.

Dr. Brodie's earliest research work concerned the mating systems of Agaricales and other basidiomycetes, especially the role of insect transfer of oidia in effecting dikaryotization of mycelia. While on leave to the laboratory of Dr. R. Vandendries in Belgium he also studied the barrage phenomenon (genetic mutal aversion) in various basidiomycetes.

Later, starting in 1941 and under the direction and I might say the powerful influence of Dr. Buller of this University, Dr. Brodie was persuaded to collaborate with Dr. Buller in testing splash dispersal mechanisms in Cyathus, the most advanced genus of the bird's nest fungi. Later he went on to study the splash-cup mechanisms in many of the bird's nest fungi and demonstrated its occurrence in Polyporus conchifer, several mosses, liverworts and some flowering plants.

The total biology of the bird's nest fungi - including morphology and taxonomy, cultural requirements, physiology, genetics, cytology and, to a lesser degree, biochemistry - occupied Dr. Brodie and a succession of graduate students from 1941 until his retirement. His taxonomic studies still continue at the University of Victoria.

All this work culminated in the publication in 1975 of his book "The Bird's Nest Fungi" (Univ. of Toronto Press), which provides an up-to-date taxonomic revision of the group as well as a summary of all other studies on these fungi and the history of splash-cup mechanisms. The bibliography contains virtually all pertinent publications in the field. The book will certainly remain the definitive reference on these fungi for the foreseeable future.

Dr. Brodie's contribution in research is surely matched by his success as a teacher. His lectures are remembered by his former students and colleagues as well-organized, informative and, above all, stimulating. One student pretty well sums up Dr. Brodie's influence as a teacher and I quote:

"It was Professor Brodie's influence and example that made me a scientist and mycologist. His teaching offered variety and challenge as well as information. Above all, he taught scientific method, including how to search the literature, make objective observations of phenomena, isolate a problem, formulate hypotheses and test them experimentally. And always, he led us to return to the whole organism in its natural environment, there to learn to appreciate its role in the intricate fabric of life."

Above and beyond all of the qualifications that I have enumerated in research and teaching, to me the most important of all is that Harold Brodie is a cultured gentleman, a marvellous human being and a friend. I can think of no one more deserving of this award. So on behalf of the CBA/ABC I present you, Harold Brodie, with the George Lawson Medal.

NOMINATIONS - A REMINDER

If you have not already sent in your nominations for officers of the CBA/ABC and for recipients of Lawson Medals please do so without delay. See the July issue of the Bulletin for fuller information.

NOMINATIONS FOR N.R.C. GRANT COMMITTEES

The CBA/ABC Nominating Committee is responsible for making nominations to the Biological Council of Canada for membership on the National Research Council Grant Selection Committees. Would you please forward immediately suggestions for the following committees to Dr. Wilson Stewart, Chairman of the Nominating Committee.

a) Cell Biology
b) Plant Biology (we need 2 nominations here)
c) Population Biology

His address is:- Department of Botany
University of Alberta
Edmonton, Alberta
T6G 2E9

N.R.C. JOURNALS

Treasury Board has very recently proposed to Cabinet that the NRC divest itself of their present responsibility for publishing science journals by next April.

The rationale behind this proposal is based on a) Treasury Board's role of identifying government activities which could be farmed out to the private sector, and b) that with the loss of certain activities due to Bill C-26, the NRC should also have matching reductions in budgets and man-years.

The Royal Society of Canada is under contract to the Institute for Scientific Information to review and advise on Canadian Research Journals. They hope to submit their report by December. BCC has responded with a Brief to the Prime Minister and Cabinet. The brief stresses the importance of the NRC journals to the scientific community of Canada and the high international reputation that they have earned. The financial implications of a transfer of these journals to the private sector are fully discussed and the point is made that the ultimate cost to Government from this transfer would not be reduced. There would simply be a transfer of financial responsibility from one arm of government to another as government and university libraries form the backbone of any journal subscription list, and as page charges (which are imposed by most commercial journals) are usually paid out of grants, or by the department in which the scientist is working. The brief urges that government enable NRC to continue to publish and support the journals for which it is now responsible. Our president has written fully supporting the BCC brief.

BILL C-26

On the 2nd and 3rd of June 1977, third and final reading was given to Bill C-26 - "The organization of certain scientific activities of the Government of Canada". The following are remarks of the Minister, The Honourable Hugh Faulkner, in moving passage of the Bill.

The main impact of this bill will be on the university community. I believe the reorganization of the granting councils will open the way to a new relationship between the government and universities in research matters. Perhaps I might speak about that for a moment.

The growth of university research over the last 15 years or so has been considerable. In 1961-62, the granting councils provided $26.5 million to the universities; in 1977-78, the estimates for the councils called for $172 million to be spent of research grants.

In the rapid development of the universities in the 1960's, there was strong competition among the universities to gain recognition and status in research. Universities vied with one another in trying to build up schools of graduate studies very quickly. I think it is fair to say that most of them had had little experience in guiding efforts in research, and few had a conscious policy which gave direction to these efforts. The emphasis was on attracting individual researchers of great ability who were then supported in research of their own choosing. Our universities, and Canada as a whole, benefited by bringing into their ranks scientists and scholars of outstanding calibre.

On the other hand, a price was paid. In nearly every university there are some well developed programs of research in certain departments, but generally there is a wide dispersion of research competence spread thinly over most disciplines. One would have to say this has been a consequence of the laissez-faire attitude of both the universities and the granting councils to research growth. We cannot be too surprised at this. Priorities for research have not been clearly enunciated by government for the universities, and the councils, reflecting the prevailing view, have judged research or scholarly projects almost entirely on the competence of the applicant and on the scientific feasibility of the project. There has been little, if any, co-ordination of university research objectives regionally or nationally.

Since becoming Minister of Science last September, I have visited many universities and talked to many university scientists and scholars in an attempt to understand what the role of university research should be. Is the main purpose of this role to push back the frontiers of knowledge? Is it to train graduate students to be competent researchers? Should it be helping to solve problems posed to it by governments or industry? These are difficult questions because universities are complex institutions serving many goals and constituencies of our society, but I believe the answer is all three. My perception is, however, that there has been an imbalance in favour of the first two and at the expense of the third. I have reached the conclusion that the universities must begin moving more of their research and enquiry into the mainstream of effort aimed at understanding and solving our pressing national problems.

I am not saying by this that research which is stimulated solely by the imagination of the researcher and whose objective is discovery, nothing more, should not be supported or should be downgraded in any way. Curiosity-oriented research - or discovery-oriented, as John Polanyi has said - must continue to receive solid support. Although the last few years have been tough, I believe that an even more selective process is needed, however, which will allow those relatively few individuals whose research is of recognized quality, at least nationally and possibly internationally, and who have shown a rare blend of knowledge, imagination and passionate interest in discovery, to be supported well, perhaps better than they have been in the past.

There are, on the other hand, many individual researchers and groups of researchers whose talents and dedication might equally be challenged by identifiable issues of priority concern to governments and the public at large. It has become apparent to me in my visits that the nature of the research enterprise in universities has been changing. The existence of cross-disciplinary groups - in environmental and policy institutes, for example - and the collaboration that has been taking place on large projects is shifting the attitudes of university researchers. Whether recognized or not, the laissez-faire attitude to the support of university research has a much narrower validity than it once had.

What this means is that the time has come for a more activist approach by the granting councils to the determination of research priorities and to the creation of new policies and programs which will give university research an even greater opportunity to respond to national needs. Bill C-26 is important because it creates a new and dynamic framework in which this vital, evolutionary change in the direction of councils can take place...

Now, I would like to look at another part of the framework of the granting councils which exists outside granting councils itself but which I have discussed both in committee and on second reading. I am referring, of course, to the role of the Inter-Council Co-ordinating Committee. This committee, as I indicated on second reading, will report to me. It will consist of the Secretary of MOSST, as Chairman, and the heads of the three (3) councils. It will be the forum for discussions among the councils and between the councils and the government. It will have as a prime function the job of co-ordinating the policies, programs and practices of the councils, to see that, on the one hand, they do reflect national objectives and priorities, and on the other that they make sense from the point of view of the universities for the development of university research across the range of disciplines. The councils have, of course, final responsibility for shaping their own objectives and supporting policies and programs. This is quite clear. The ICCC will be the sounding-board for discussing their completeness and consistency and their total impact on the university research community. This will be a new and significant element in the federal granting picture.

The ICCC will have other functions. It will advise on the allocation of funds among the councils; it will take an active role to ensure that the needs of interdisciplinary research, both within councils and crossing the boundar-

ies of both disciplines and councils, are met; it will try to see that all disciplines are covered. The committee can invite others to its meetings from both outside and inside the government. As the new councils become established, I can see that the ICCC will be a valuable forum for looking at the interaction and balance among departmental programs of university support and council programs, for example, those of agriculture and the new natural sciences and engineering research council. There has been criticism that the ICCC is not in the bill and, without statutory authority, will lack muscle. In my view, that is not so. Its authority derives essentially from the intention the government has for it, its membership and its role. Its scope and action remain flexible and, as with the bill, the concept behind its creation is evolutionary change.

I have laid emphasis on the need for clearer objectives for research support by both the councils and the universities themselves. I noted in my second reading statement the kind of objectives, in broad terms, the councils might be guided by. I would like briefly to elaborate on certain of these, because I would like the House to appreciate the longer term implications of this bill and the importance of what will be done here today in bringing this bill a step closer to final approval. I would also like to feel I have the support of the House for the thoughts I am putting forward.

The goal of all university research must continue to be excellence assessed by the peer review system, whether it is in unravelling the structure of an enzyme or in developing new techniques for extracting oil from tar sands. I have said, however, that the era of all university research being motivated solely by the desire to expand the frontiers of knowledge is passing. Research in the universities is now multi-faceted, and increasingly the stimulus for the research will be coming from outside the university. But we cannot expect, as a nation, that university research will be able to contribute fully to national issues if we do not define what the research objectives are with respect to those issues and what opportunities there are for university scientists and scholars to get involved.

The challenge to the new councils is to develop policies and mechanisms which will encourage the university research community to respond. The problems posed to the community should not only be those of direct concern to governments and industry, as I indicated last night, but should also cover the issues confronting Canadian society in general. The broad objectives or guidelines I described last December provide a context for the definition of these research objectives. To speak in particular of two of them, I think the councils must consider a regional balance of scientific capability and the support of interdisciplinary research in setting out and implementing their objectives. The objective of achieving a regional balance should not be interpreted as meaning that the government wants to see a regional balance within each discipline. This would be unreasonable; we simply do not have the resources. What is intended is a fair distribution of centres of specialization in different disciplines or groups of disciplines across the country. Thus, we should reinforce a regional capability which has grown out of the presence of an outstanding scientist or scholar or a special competence related to the geographic, economic or social conditions of the region.

There will be difficult decisions for the councils here on what to support, and where. The appropriate marshalling of talent and resources in centres of specialization will depend on a detailed knowledge of the state of the art in various fields of research and an understanding of the strengths and weaknesses of the universities, including an awareness of the attitudes to research of the university administrations. The councils must begin to obtain this information if they do not already have it.

The councils should also, I believe, give serious thought to how interdisciplinary research is best supported and carried out. Some success has been achieved by the present councils in supporting scientists and scholars from different disciplines working together in various university institutes which cut across traditional departmental lines. From my own observations, I know, however, that many of these efforts have been tentative and have failed to develop the right kind of institutional mechanism or reward systems which would ensure continuing success. There are obstacles in the way of establishing the mutual respect necessary for good teamwork. These will have to be overcome if the optimum level of research capability in Canada is to be achieved. Future progress in addressing national problem areas will be based on the sharing of knowledge among disciplines, as will the general advance of knowledge, and new policies and programs from the councils will be needed. It is especially in these areas that bright, young scientists would be able to pursue research careers.

It is not difficult to think of areas of national concern where research is essential. The efficient develpment of our agricultural and food technologies, the management - including both exploitation and protection - of our marine resources, the identification of poisons in our atmosphere and water affecting the health of Canadian society, and the increasing concentration of Canadians in a few urban centres are examples. The councils, bearing in mind provincial and regional priorities, will have the task of translating national issues into research objectives.

What will these research objectives look like, and how will they be arrived at? I am nor sure I can answer this question with any assurance. This will be a task for the councils. It has not been done to any extent before, but what is clear to me is that it will require leadership from the councils to see it through. The process of setting these objectives must, I think, have the involvement and support of the scientific and scholarly communities. Without the backing of the community, the response to such new objectives is not likely to be of high quality or quantity. The challenge, as I say, will be for the councils to come up with policies and programs which strike the right note. I would add that universities themselves may also find their research policies have to be re-examined in light of the changing directions of council programs.

Finally, I do not want to leave the impression that the councils will be devoting all their resources to specific issues. The support of free enquiry has a firm place in council objectives and, as I emphasized, will continue to have that place. Basic research has produced much of the knowledge underlying our present prosperity. Canada will go on contributing to that body of knowledge which is the common

property of all mankind. To be a parasite on this stock of knowledge is not the government's policy. Our contribution has been distinguished in the past and I hope it will be even more distinguished in the future.

Mr. Bill Kempling, M.P. made the following comments:

The concerns I expressed about Bill C-26 at second reading are in the main still with me. At the time of the second reading debate, I said I believed that by putting in place an additional layer of bureaucracy, the net amount of money available for actual research would be less. Given the illusory position of the government with regard to reducing the cost of administration, and given the constraints placed on total budget estimates, we can only conclude that there will be, by the mechanism of this bill, less money available for actual research, where the real work is done...

Further, I was somewhat concerned about the release on April 26 by the minister regarding the contracting out of scientific requirements to the private sector. In effect, that is merely a reshuffling of the deck. The existing policies of the government for industrial research are, in real terms, available to only 5 per cent of Canadian industry, and they really should be oriented to 95 per cent. Only about 1,550 Canadian firms are capable of supporting in-house research and development. Another 5,000 Canadian firms are capable of purchasing research from private or provincial research foundations. The balance of about 24,600 Canadian firms can neither support in-house research nor purchase research on new products from private or provincial research foundations. The basic problem is that the government has never committed itself to the establishment of a strong secondary industrial base in Canada. I see little, if anything, in this legislation to change that...

The very basis of a manufacturing industry is the systematic application of science and technology. Technology is the key to industrial progress and the key to competitive survival. Appropriate technology is the key to development of small, regional enterprises in the less developed regions of this country. Much of that appropriate technology should be geared to the resource bases of those regions. Most of our legislation is geared to the development of economies of scale and of specialization agreements and exclusion from monopoly legislation in order to achieve those economies of scale.

The criticism I have is that the base is being continually narrowed and little attention is paid to broadening it. For this reason, we were critical of the transfer of the patents and development branch to the Department of Industry, Trade and Commerce, where we believe it will be lost in the bureaucratic jungle and will wither on the vine...

I do not view science and technology in any partisan way. It is too important to be pushed into the background by political bickering. The representatives from the scientific and academic community who visited our offices while this bill was being debated brought with them their sincere concern for the future of scientific research. They stressed very conclusively the need for continuous funding so that they could keep their research teams together. They talked sincerely and with conviction about their concerns for future scientific research and the need for long-term funding so that they could continue to attract the best students into this vital field. I can only say to them that we appreciate their concern and will endeavour to address ourselves to it in the months ahead.

I urge the scientific and academic community not to give up because of the constraints on spending we presently face. The short-term future may look bleak, but the long-term future is bright. To those who are being enticed away by promises of higher rewards we say: Pause and think about the future of Canada. The difficulties we face will be of short duration in the span of an academic life, but we need the very best minds that are available if we are to achieve the promise of the future...

Mr. Orlikow, M.P., commented as follows:

Juggling around with the granting mechanism and establishing new granting councils will not solve our difficulties in scientific research. The new granting body may employ more people than the old council, but that will do little good. After all, unless you make more money available for scientific and social research, cutting the pie up into smaller slices will not increase its over-all size.

I was amazed, to say the least, at some of the things the minister said this morning. He said, for instance, that the government does not intend this country to be a parasite on other countries in the field of scientific research; that is not government policy. Also, he said Canada will do its share. That is precisely our position. In a study carried out for the Ministry of Science and Technology in 1975, it is stated:

> Major capital stock of any industrially advanced nation is not its physical equipment but rather its body of scientific knowledge and the capacity of its population to use this knowledge.

According to Statistics Canada, we are now turning out about 2,500 Doctors of Philosophy a year, the largest number ever. Again according to Statistics Canada, it is unlikely, given the policies we have been following in the research field, that as many as half of their number will be able to find gainful employment. That is a disaster for the country and a tremendous waste of our human and financial resources...

We believe that the agencies need to be charged with the responsibility of sponsoring more of what has been called, in the scientific community, mission-oriented research. This is research which may involve a considerable element of basic research but which nevertheless is directed toward a specific goal or mission. This type of research is most often conducted in a government or private research institute. Many countries, particularly France, West Germany and the Soviet Union, have promoted these research institutes with considerable success. We have experimented with this type of research organization in the establishment of Atomic Energy of Canada Limited, which was largely responsible for the basic research and development which led to the CANDU nuclear reactor which we claim is one of the best in the world. Unfortunately, there are a few other examples in Canada of this type of research organization which might best be called a research and development corporation.

We are facing a dilemma. On the one hand, there is a growing surplus of manpower in the science and engineering fields, with little indication of what we should do with these people; on the other hand, funding for research and development has steadily decreased in terms of constant dollars over the last ten (10) years. Hence, fewer and fewer jobs are available for our graduates.

In our view, we need a national science policy designed to promote scientific and technological innovations to meet the important economic, environmental and social challenges confronting us and to enhance our daily lives. To achieve this we need a government willing to commit a much greater percentage of our gross national product to basic applied research and development. We need research and development Crown corporations to help these national goals. We also need a firm commitment by the government that we are going to move to regain control of our industry in order to stimulate this applied research and development.

Science is too important to continue in the way we have. While we support the bill we have before us, we do not believe the government really means to do the kind of things in the field of scientific policies which are required. We foresee much more trouble in the coming years than we have had in the last couple of years, with more unemployment and more difficulties for the thousands of graduates we have been turning out from our scientific institutions.

THE BALANCING POINT

Mid-1977 may well prove to be crucial for scientific and technological research in Canada. We are balanced between the woeful years since 1969 and a different, but still uncharted future.

What that future holds will be largely decided by how well the scientific and engineering community can respond to the challenges offered by the legislation in process through Bill C-26, and by Mr. Faulkner's important speech on June 2nd and 3rd at third reading of the Bill. The goals are clear: to back excellence where it exists or can be developed; to foster research towards defined national objectives; to provide the necessary multidisciplinary relationships for this; to achieve some regional balance of effort in the country while focussing specific types of effort in a few places; and to seek "a new relationship between the government and universities in research matters", as the Minister has invited us to do.

These will be among the tasks of the new granting Council for Natural Science and Engineering. They have been issues ever since the Lamontagne Senate Committee began its series of studies. But now the Government of Canada has clearly declared its commitment to them and has specifically charged the scientific community with their implementation.

The new Council must do more than paper over the cracks, or make token adjustments to what already exists. It will have to think again from first principles, convince the traditionalists that real changes are necessary, and ensure that the changes themselves are judicious, deliberate, and constructive. It must lead us through transition, through evolution rather than revolution, while preserving the peer judgement system to prevent the emergence of yet another tier of bureaucrats trying to dictate what others (but not themselves) should be doing. Writing in a somewhat similar vein, W.D. McElroy, the retiring President of the AAAS, suggests that we are leaving the Age of Technology and entering what he calls the "Global Age" -- an era in which,

> "...we are interdependent literally for our mutual survival in a reasonable world.. ..It will not speak well of the scientific community if we must be dragged into the global age kicking and screaming, with a debilitating case of future shock. If we can protect and strengthen basic research --and you will recall I made particular note of the health of our universities and the support of young investigators--if we can encourage more problem-oriented research and better articulation between research sectors, then I believe we can do better than muddle through my so-called global age." (Science, 196, 267-270, April 15/77)

Willy-nilly, we are all involved. The new granting council will need solid support from the whole scientific and technological community. Mr. Faulkner has eloquently pointed the way. We can be blindly prodded and driven, we can be ignored and left at the roadside, or we can seize the opportunity for constructive leadership that has been provided. It is up to us.

H.R. Wynne-Edwards - President of SCITEC

RESEARCH FOR SURVIVAL

At the SCITEC annual meeting held at the University of Toronto in May of this year a forum was organized dealing with the topic Research for Survival -- the critical points and the decision-making process. Speakers included J. Tuzo Wilson, Harding Le Riche, Hugh Faulkner and Frank Maine. The following were amongst the recommendations to emerge from the forum.

1. A new breed of ecologists must be developed. L.C. Bliss of the Department of Botany, University of Alberta, focussed on the recent Berger Report on the Mackenzie Valley Pipeline to illustrate his point. Although the report is the most complete environmental assessment ever done in North America for a single project, Bliss was able to point out a number of defects in it.

   * The experts testifying seemed more interested in arguing among themselves than in solving problems.

   * The right questions were often not asked by counsel and by other lawyers.

   * The caribou researchers learned a lot about numbers and migration in the herds, but ignored the impact of low flying planes on calving.

   * An undue amount of attention was paid to wild species and too little to habitat, vegetation and timber. (Bliss favours the coastal land route from Prudhoe Bay, believing that a rare break in the pipeline along the Arctic Coast would be much less harmful than one supertanker spill in Pudget Sound.)

At present, what is needed, claims Bliss, are ecologists who understand engineering, law, economics and politics and lawyers who understand science and who can therefore ask the right questions. We need improved ecological studies and better scientific leadership. Ecologists must be more pragmatic, more willing to accept trade offs, more ready to guess intelligently. Ecologists must move into more senior positions in government and industry. And finally, certification of professional ecologists is ultimately necessary to raise standards of practice.

2. With respect to food policy, Clayton M. Switzer, Dean of the Ontario Agricultural College at Guelph, made several points.

   * Since Canada has a potential for increased food production which is only double our present yield, we can have no large impact on world food supply. Canada should therefore plan to supply food only for short term emergency relief.

   * Canada can help the world food supply by providing technological aid aimed at improving production in developing countries.

   * Canada should define its own national land use policy to protect high quality agricultural land.

   * Canada should aim for self sufficiency in food production both at home and abroad.

   * Canadians should be encouraged to make careers in international agriculture and Canada should help educate students from developing countries.

3. The Canadian federal government policy on ocean sciences as reported by A. Collin, Assistant Deputy Minister, Environment Canada, recognizes the need:
   * to develop an information base about Canada's coastal waters and resources;

   * to develop excellence in operating on and below ice covered waters within five (5) years (herein lies Canada's unique contribution to global oceanography);

   * to develop ocean engineering ability;

   * to increase the ability to forecast the environment.

The meetings were poorly attended by members of the scientific community, a fact which generated the comment that "scientists across Canada have a lot of catching up to do in the next year to restore their own credibility in the eyes of the politicians, civil servants and their own peers who came to talk with them and found them absent". (with present restrictions on travel to meetings is it surprising that some of them are poorly attended? - ed.)

B.C.C.

Highlights from the Report of the President of the Biological Council of Canada to the Society at the Annual General Meeting, Winnipeg, June 1977

Over the past year the activities of the B.C.C. have been directed to six major areas:

1. The problems of research support for university biologists.
2. Preparation of a Brief to the Secretary of State for Science and Technology on the proposed bill to re-organize scientific activities supported by the federal government.
3. Co-operation with the Canadian Committee of University Biology Chairmen who have Observer Status on Council; the Agricultural Institute of Canada and the Entomological Society of Canada.
4. Preparation of a Brief to the Secretary of State of Canada on Museum Collections and their importance to Canadian science.
5. Initiation of a new National Statement on Biology in Government - "Here Today - Gone Tomorrow!".
6. Publication of a prospectus for a Canadian Institute of Biology.

In September, Drs. Mettrick and Walden appeared before the Senate Special Committee on Science Policy to present the B.C.C. brief entitled 'Biology in Canada; Retrospect and Prospect'. The B.C.C. was the only biological organization invited to present a brief and appear before the Committee and both the Canadian Federation of Biological Societies and the Canadian Committee of University Biology Chairmen associated themselves with us and supported the brief. Without the B.C.C. we would have had no opportunity of publicly arguing and presenting our concerns to Parliament.

Drs. Mettrick and Walden also appeared before the Miscellaneous Estimates Committee of the House of Commons in May, 1977 to present the B.C.C. brief on Bill C-26 - an act to re-organize the scientific activities of the federal government. Again the B.C.C. was the only brief speaking for biologists. The Bill has now received its third reading, is presently before the Senate and it is anticipated that it will receive Royal Assent prior to the House recessing for the summer. Appointments to the new councils are now being considered and will be announced in the fall.

In January the President of the B.C.C. joined with the Agricultural Institute of Canada in presentations to the three caucuses of the House of Commons on the neglected status of Canada's agricultural research programme. The B.C.C. also participated in the C.A.U.T. organized Science Lobby in April and has held meetings with officials from the N.R.C., M.O.S.S.T., Agriculture Canada, Science Council, National Museums, etc. as well as with ministers and members of the House of Commons.

To the question of how effective these presentations and lobbying activites have been, there are both tangible and intangible returns. Three examples of the former are the increase of $1.6 million for university research in biology through the National

Research Council. Secondly, following the extraordinarily successful 'write-in' by biologists on the matter of representation on the Councils, Professor Beryl March, F.R.S.C. has been appointed to the N.R.C. Dr. March is in the Faculty of Agriculture, University of British Columbia. Other biologists will be appointed to the new Natural Sciences and Engineering Research Council (N.S.E.R.C.). Thirdly, the B.C.C. has been involved in science policy at the planning stage, such as the guidelines for the new N.R.C. programme for research in areas of national priority; the role of the new Inter-council Co-ordinating Committee established by Bill C-26, etc.

While the intangible returns are harder to identify, it is clear that the B.C.C. has established a high degree of credibility in what C.P. Snow termed 'the corridors of power'. Doors previously closed, are now open; we have appeared before two estimates committees of the House (Miscellaneous and Agriculture); we expect to be invited before others such as Environment and State; we have established the essential continuity of effort so that with each meeting new progress is achieved rather than endlessly repeating official positions.

Looking at the broad picture of biology in Canada, there will, in the next few years, be considerable changes affecting both biologists in government agencies and those in universities. We shall have to retain a strong effective input on the Ottawa scene to ensure that the importance of biology to Canada and Canadian science is both recognized and acted upon in the face of strong competition from other sources and other sciences for support and recognition. The Biological Council of Canada will continue to supply that essential input and to represent the concerns of Canadian biologists.

A PROPOSED CANADIAN INSTITUTE OF BIOLOGY - THE PROFESSIONAL ORGANIZATION FOR CANADIAN BIOLOGISTS

Just over two years ago the Biological Council of Canada unanimously instructed its executive to explore with the Canadian Federation of Biological Societies and the Canadian Committee of University Biology Chairmen the question of professionalism for biologists and the establishment of a Canadian Institute of Biology. Unfortunately, the Federation did not wish to pursue the matter so that the recently published prospectus (enclosed) is a joint preparation by the B.C.C. and the C.C.U.B.C.

This is probably one of the most important matters that individual biologists will have to consider and act on in the '70's and these comments will, I hope help the reader in making a decision.

The first thing that we should all be quite clear about is what is meant by the term 'professional'. Webster's International Dictionary defines a profession as follows:

> "A calling requiring specialized knowledge and often long and intensive preparation including instruction in skills and methods as well as in the scientific or scholarly principles underlying such skills and methods; maintaining by force of organization or concerted opinion high standards of achievement and conduct; committing its members to continued study and to a kind of work which has for its prime purpose the rending of a public service".

In preparing the prospectus this concept of professionalism has been applied to our projection of a Canadian Institute of Biology.

Associated with professional status is the process of certification which is the issuance of some form of certificate attesting to the bearer's achievement in acquiring specialized knowledge and that the skills learnt meet some professional standard set by the body issuing the certification.

Certification may, or may not, confer the exclusive right to practice a profession. A profession with reserved title does not close its practice to non-members. Obviously in such cases there are difficulties in controlling standards and protecting the good name and standing of the profession. A profession with exclusive practice is closed to those who have been formally certified and all aspects of the profession (training, ethics, standards, numbers, remuneration, discipline, de-certification) may be controlled.

In the Canadian context professional associations which involve certification and some degree of restriction of activity in the practice of the profession are governed by legislation enacted at the provincial level. It is noteworthy that nearly all professional organizations whose activities and interests are greater than the confines of a particular province, have established National Councils (or equivalent) with Provincial Chapters (or equivalent).

While associations such as the Canadian Council of Professional Engineers, the Canadian Association of Physicists, the Chemical Institute of Canada and the Agricultural Institute of Canada have, in some cases, been established for over 50 years, biologists have only recently become concerned about their lack of legal professional status, and all that that implies. Discussion concerning the Alberta Society of Professional Biologists started in 1972; L'Association des Biologistes du Québec in 1973 and most recently the Canadian College of Microbiology, which has just been formed.

The Canadian Institute of Biology will, in the light of the above, clearly have to have a number of goals, which may briefly be enumerated.

1. Flexibility. Above all the major emphasis of the C.I.B. must be on individual biologists and how they can be protected, served and helped as professionals. Neither the B.C.C. nor the C.C.U.B.C. will dictate in any way the form that the Institute will take. The objectives, activities and benefits outlined in the prospectus are not binding on the Institute. The direction and operation of the C.I.B. will initially be controlled through a Provisional National Council whose first responsibility will be to conduct an election of the National Council from among the founding members.

   We have, therefore, planned for something that starts as a national institute, will move possibly to reserved professional status and then to certification with restricted professional standing.

2. Accomodation of other groups. There are nearly 30 biological societies in Canada, each of which could further subdivide to form small, special interest professional groups. In our view, this would be a disaster and such groups could never become effective, fully professional organizations commanding respect and consideration of their status. The C.I.B. is envisaged as an organization which can encompass biologists of every sub-discipline interest, creating a large membership which can on the one hand act with strength on matters that affect us all, and on the other hand provide a framework for the operation and aspirations of small sub-discipline groups.

   This accommodation may, if the Institute wishes, extend to cover scientific societies. While this association of individual and corporate members has been tried in a number of existing groups (i.e. A.I.C., C.I.C., S.C.I.T.E.C.) the results have not always been good and this will have to be carefully considered by the members of the Institute at the appropriate time.

3. Categories of membership. The C.I.B. is intended to serve the interests of all those involved in the biological sciences from the advanced specialist with higher degrees, to the technician with a Community College diploma. Thus the title of Fellow of the Canadian Institute of Biology might be restricted to those who had a Ph.D. or equivalent and specialist training and experience. The title would then be further qualified by designating the field in which the Fellow had senior status. Again, all these details remain to be determined by the Certification Board of the Institute, but the grouping of Fellows by their area of specialization would allow the creation of divisions if so desired.

4. Relationship to existing organizations. The status of existing organizations when the Institute is established has also been considered. The technical and detailed scientific aspects of biology are best served by specialized societies. Their role as information-exchange agencies is one ideally suited to existing societies who organize national and local meetings across the country. This should be continued.

   Umbrella organizations of societies, such as the C.F.B.S. and the B.C.C. can focus on activities beyond those strictly scientific. In effect the B.C.C. has become the innovative science policy arm of its member societies and the vehicle through which the member societies can take joint action on common problems. The future of such umbrella organizations depends entirely on the wishes of the supporting societies; what the C.I.B. becomes and does depends entirely on the wishes of its individual members. The two are entirely separate in practice and design.

Finally, let me again emphasize that the role of the B.C.C. and the C.C.U.B.C. has been that of founding 'godparents'. There was unanimous agreement to consider the institute concept and to present the prospectus to Canadian biologists at large. That is where the role of the B.C.C. and the C.C.U.B.C. stops completely! It is now up to individual biologists to make their own decision on supporting the C.I.B. before the deadline of next December. If insufficient applications are received by the deadline, the proposal will not be extended or carried any further forward. Speaking just as an individual biologist, I think the time for a Canadian Institute of Biology is very timely; may I urge you all to carefully read the prospectus and to think about what it means to you individually and for biology in Canada, around which our lives and careers are so intimately linked. Then get out your application form and cheque book and become a Founding Member.

D.F. Mettrick, President B.C.C.

FORTHCOMING MEETINGS

The American Quaternary Association

Fifth Biennial Conference, Edmonton, Alberta, September 2 to 4, 1978. Theme - The Ice-free Corridor and Peopling the New World. For more information contact Dr. N.W. Rutter, Dept. of Geology, University of Alberta, Edmonton, Alberta, T69 2E3.

Biological Aspects of Rare Plant Conservation

An International conference on this theme is being convened jointly by the Botanical Society of the British Isles and the Linnean Society of London during the summer of 1980, to be held at Burlington House, Piccadilly, London, W.I.
Duration: 5 days of papers.
Convenors: Linnean Society
G.Ll. Lucas, Deputy Keeper, Herbarium, Royal Botanic Gardens, Kew.
F.H. Perring, Head, Biological Records Centre, Monks Wood, Huntingdon
Botanical Society
S.M. Walters, Director, University Botanic Garden, Cambridge.
T.C.E. Wells, Institute of Terrestrial Ecology, Monks Wood, Huntingdon

The conference will be concerned with the conservation of threatened plants in the original habitat and the problems which this poses. The following themes will be covered:-

1. Assessment of Threatened Species. Survey of techniques available for recognizing which species are threatened.
2. Monitoring of wild populations. Survey of techniques available for recording change.
3. Autecological studies. Case histories of research on species the results of which could influence conservation management. Purely autecological papers will not be accepted.
4. Management of Reserves for threatened species and a synthesis between the management for both plant and animal and other features of the ecosystems. The translation of autecological knowledge into practical reserve management.
5. Introduction and reintroductions. The degree to which this is ethical and practical with examples of success and failure.

The conference would be followed by a 2-3 day excursion to look at British Nature Reserves where aspects of the main themes of the conference can be demonstrated and discussed.

The proceedings of the symposium will be

published as a Symposium Volume to be edited and published jointly by the two societies in association with Academic Press. To be on sale by Spring, 1981.

The Second International Congress of Ecology

The Ecological Society of America is exploring the possibility of procuring funds for a delegation to attend the Congress which will be held in Israel in September 1978. These funds are most likely to come from the National Science Foundation. One of the stipulations of NSF support is that funds cannot be provided for non-residents of the U.S., except for Canadian citizens working in the U.S. If ESA is successful in obtaining funds for this purpose, its committee would be happy to consider requests from Canadians in the U.S. who meet this NSF criterion. However, since the likelihood of receiving support from other sources is not great, it is suggested that Canadians should pursue support for a group on their own. At present ESA is not planning to arrange a charter flight since the number of anticipated U.S. participants in the program will probably not warrant it. However, if a group of Canadian ecologists were to join with them they would be happy to explore the possibility of such an arrangement.

Interested Canadian ecologists should contact Dr. J. Svoboda, Dept. of Botany, Erindale College, University of Toronto, Mississauga, Ontario, L5L 1C6.

PUBLICATIONS

A Beginner's Guide to Freshwater Algae

by Hilary Belcher and Erica Swale. The Institute of Terrestrial Ecology has produced a Beginner's Guide to Freshwater Algae. 110 genera have been selected and illustrated with accurate line drawings - almost all from living specimens. The booklet costing 85p is available from HMSO. P.O. Box 569, London, SE1 9NH, U.K.

PERSONALIA

Dr. Eugene P. Odum

On 15th April President Jimmy Carter presented Dr. Eugene P. Odum with the Pepperdine University Tyler Award of $150,000. Formal ceremonies at Pepperdine University were held on 23rd May.

Dr. Odum must be one of the world's best-known ecologists and it is a great compliment to our science that he should have been honoured in this way. The award was established in 1970 to recognize the "individual or team of individuals working on a common project whose accomplishment has been recognised as conferring the greatest benefit on mankind in the fields of Ecology and Environment."

Among the comments made by the selection committee are: "Dr. Odum...authored the first textbook to take a holistic and synthetic approach...his book kept ecosystem ecology alive so that fundamental ecosystem concepts were available when needed with the dawning of environmental awareness in the late 1960s... This is the one work, because of its systems approach, which for the first time makes ecology meaningful to applied ecologists and engineers."

INVENTORIES - regional and national lists.

MAB (the Man and the Biosphere) Programme is compiling a list of inventories of natural resources. Any of our members who are involved in the compilation of lists of plants, either on a national or a regional basis, are asked to send information on the project to:- Dr. P. Roberts-Pichette, Executive Secretary, Canadian MAB Programme Secretariat, Liaison and Co-ordination Directorate, Department of the Environment, Ottawa, Ontario, K1A 0H3.

POSITION AVAILABLE

Phycologist:

Teaching various courses at undergraduate and graduate level. Research in freshwater phycology: taxonomy, ecology, primary productivity. Candidates with Ph.D. (or D.Sc.) preferred, but candidacies without these diplomas will be considered. Situation open immediately. Salary: in keeping with the norms of the Université de Montréal based on qualifications and experience. Language: fluency in French. Send curriculum vitae and two letters of recommendation to Dr. E. Magnin, Dept. of Biological Sciences, Université de Montréal, C.P. 6128, Montréal, Canada H3C 3J7.

POSITIONS WANTED

Keen German horticultural Technician (26), presently employed as headgardener, seeks interesting position in ornamental horticulture. For further details please write to:

Rainer Schlipf
Winkfield Place
Winkfield
Nr. Windsor, Berks.
SL4 4RN, Great Britain

The Bulletin of the Canadian Botanical Assoc.
Editor:- Dr. J.K. Morton
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To ensure prompt delivery of the Bulletin please notify the Editor of any change of address as soon as possible.

Enquiries about membership of the CBA/ABC should be addressed to the secretary of the association Dr. Janet R. Dugle, Environmental Research, Whiteshell Nuclear Research Establishment, Pinawa, Manitoba R0E 1L0.