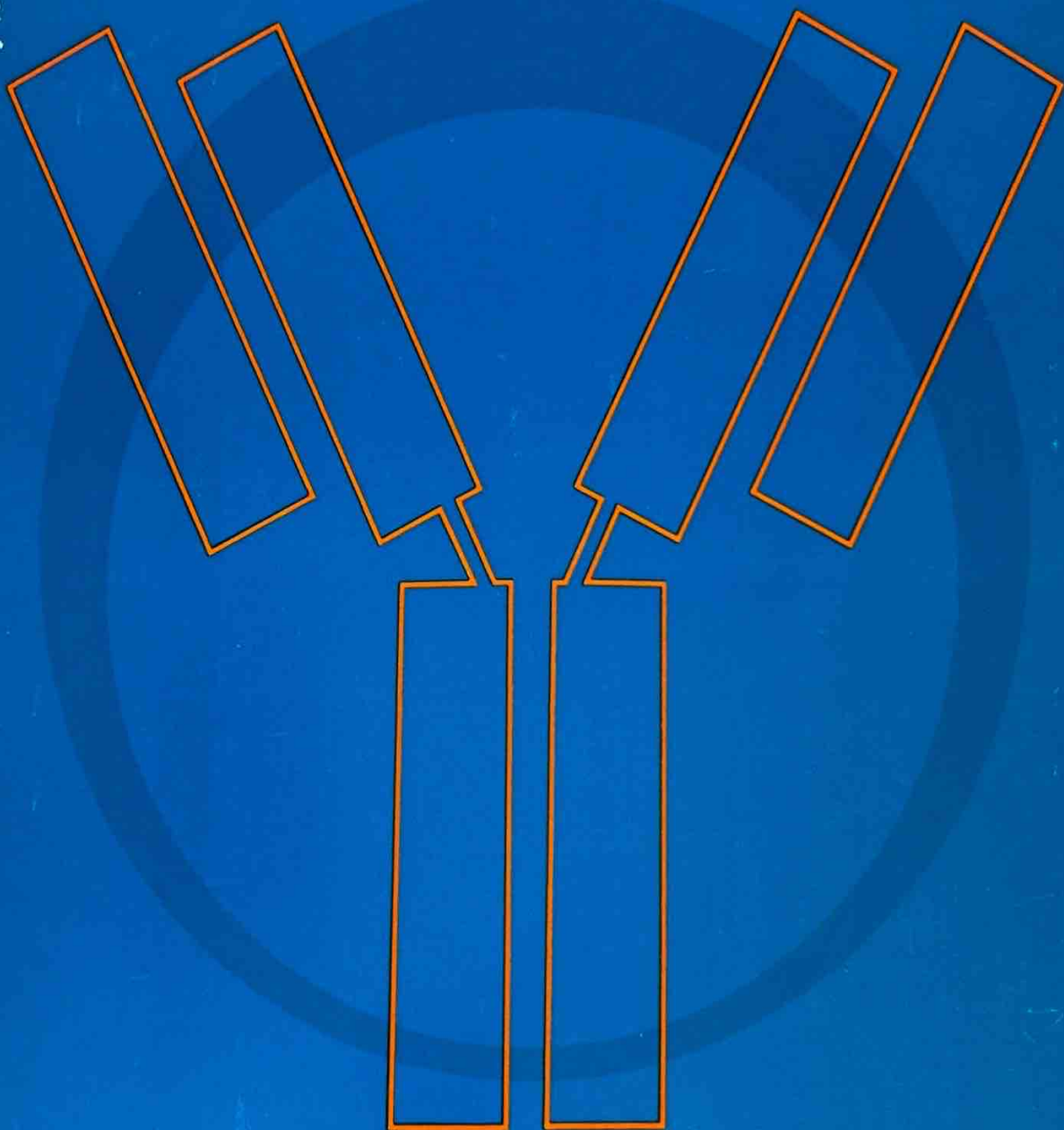


BULLETIN

November, 1979

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Canadian Society for Immunology
Soci  t   Canadienne d'Immunologie

B U L L E T I N

OF THE CANADIAN SOCIETY
FOR IMMUNOLOGYDE LA SOCIÉTÉ CANADIENNE
D'IMMUNOLOGIE

Volume 11 Number 1 (15)

November 1979

Published by the Canadian Society for Immunology and Edited by Dr. B. Sabiston, Defence and Civil Institute of Environmental Medicine, P.O. Box 2000, Downsview, Ontario, Canada M3M 3B9 telephone 633-4240(ext.225)

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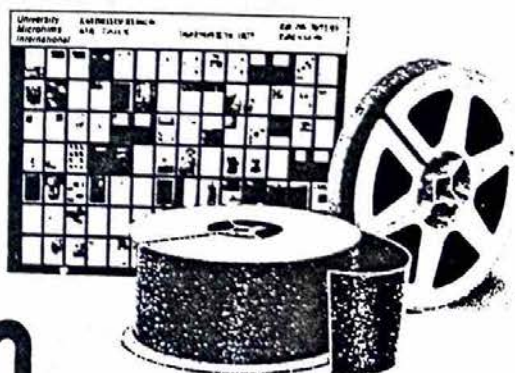
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MEMBERSHIP APPLICATION FORM

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publication
is available
in microform**



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EDITORIAL

The rebirth of the CSI Bulletin coincides with the beginning of a new decade and with the approach of yet another Federal election. This decade will see the Society hosting the VIth International Congress of Immunology -- an event which will require the cooperation of all, and a substantial personal commitment of many, of our members. Elsewhere in this issue, you will find a request for suggestions respecting the design of a suitable LOGO for the 1986 Congress and you are asked to give your active consideration and support to this and future requests.

The Federal election, once again, offers members an opportunity to confront, question and inform individual politicians on matters relating to science; an opportunity to demand that all major parties commit themselves to appointing a full-time Minister of Science and Technology; an opportunity to stress the need for a national science policy, including the absolute requirement to establish long-term funding policies for research. This issue of the Bulletin contains an article by R. Willes, on the costs of research and one by B. Cinader, advocating one approach by which a national science policy could be implemented. It is hoped that these articles, not only will be of interest to the membership, but that they will also stimulate our readers to discuss these matters seriously and to submit their views to the Editor for publication in future issues.

The Bulletin was conceived and first published in 1967 with four main objectives to serve:

- (a) as a medium of communication between members.
- (b) as a medium of communication between the Membership and Council.
- (c) as a forum for discussion.
- (d) as a newsletter, collecting and presenting information of interest to the membership.

By and large, the Bulletin has met these objectives, due largely to the untiring efforts of its founding and immediate Past-Editor, Stan Dubiski. It has served the membership well under Stan's guiding (and writing, typing, collating, stapling and stamping !!!) hand. The membership owes him a sincere vote of appreciation.

Despite the absence of the Bulletin from the Canadian scene during the past year, its objectives remain the same. In order to meet them, however, the cooperation and active participation of the membership is required. I would like to see the Bulletin served by a system of regional correspondents who could write short, informative notes on activities in their immediate geographic area, be it hospital, university, institute, department, city, province, region and etc. The Canadian Physiological Society's publication, Canada Physiology, has been using such a system to advantage for many years, as a means of informing Society members of "who is doing what, where and with whom..." Typically, departmental reports

have included:

- names and research interests of departmental members
- brief descriptions of their research
- names of graduate students
- abstracts of graduate theses
- awards to faculty members
- sabbatical and post-doctoral appointments

On other occasions, notes of historical interest and accounts of specific meetings have been reported. The articles on the Armand Frappier Institute and the report of the Leukocyte Culture Conference are typical of the latter type of reporting. Hopefully, other individuals will come forward, voluntarily, and indicate their willingness to act, at least as "points of contact", for either specific laboratories or geographic areas.

The views of graduate student members of the Society would be a most welcome addition to the Bulletin. The creation of the Student Member category should encourage more graduate students to become involved in the business of the Society and they should be encouraged to express their views and opinions through both formal articles and letters to the Editor. In this issue the announced availability of financial assistance to the IVth International Congress, is of particular relevance to graduate students.

It is imperative that the Bulletin should reflect national activities and I would urge, all members of the Society, from all parts of Canada, to take an active interest in submitting material for publication, in either or both, French and English.

It is intended that the Bulletin be issued twice a year, in November and in May, and that the November issue shall carry the Minutes of the preceding general meeting while the May issue shall carry articles raising potential topics for discussion at the forthcoming general meeting in June of each year. Clearly, the first issue is off to an inauspicious beginning with respect to meeting its first publication deadline! I hope this will serve to emphasize the need to submit material for publication, well in advance of the issue date. If information is to be in the hands of individuals in time for the June meeting, the May edition of the Bulletin must be printed and in the mail by the first week of May. This requires that all articles be in the hands of the Editor by the end of March!

I would appreciate receiving the views and suggestions of the membership on any and all matters pertaining to the Bulletin. Ideas for articles, comments on format and suggestions for improvements will all be welcomed and may be communicated to:

Dr. B.H. Sabiston

Editor, CSI Bulletin

Defence and Civil Institute of Environmental Medicine
P.O. Box 2000, Downsview, Ontario, Canada M3M 3B9

Telephone (416) 633-4240 (ext.225).

CANADIAN SOCIETY FOR IMMUNOLOGY

SOCIÉTÉ CANADIENNE D'IMMUNOLOGIE

Officers and Council

1979-1980

PRESIDENT

B. Cinader, PhD, DSc, FRS(C)

Institute of Immunology
University of Toronto
Toronto, Ontario M5S 1A8

PRÉSIDENT

VICE-PRESIDENT

J. Levy, PhD

Department of Microbiology
University of British Columbia
Vancouver, B.C. V6T 1W5

VICE-PRÉSIDENT

SECRETARY-TREASURER

A. Froese, PhD

Department of Immunology
University of Manitoba
Winnipeg, Manitoba R3E 0W3

SECRÉTAIRE-TRÉSORIER

PAST-PRESIDENT

F. Paraskevas, MD

Department of Medicine
University of Manitoba
Winnipeg, Manitoba R3E 0V9

PRÉSIDENT SORTANT

COUNCILLORS

CONSEILLERS

N.R.StC. Sinclair, MD, PhD
University of Western Ontario

J. Gordon, PhD
McGill University

L. Lafleur, PhD
Institut Armand-Frappier

P. Dent, MD
McMaster University

A. Greenberg, MD, PhD
University of Manitoba

L. Pilarski, PhD
University of Alberta

Membership

Enquiries regarding membership in the Society should be directed to the Secretary-Treasurer. Membership applications are considered twice a year, in September and March. An Application Form is included in each issue of the BULLETIN.

MINUTES OF THE GENERAL MEETING

The University of British Columbia, Vancouver, B.C., June 20, 1979

1. MINUTES of the General Meeting of June 22, 1978

MOTION: That the minutes as circulated be approved.

MOVER: P. Dent SECONDER: A. Greenberg CARRIED

2. ELECTIONS

Dr. Paraskevas reported on the elections for a new executive and council. Those elected were:

President:	B. Cinader
Vice-President:	J. Levy
Secretary-Treasurer:	A. Froese
Councillors:	P. Dent
	A. Greenberg
	L. Lafleur
	L. Pilarski

Dr. Paraskevas pointed out that according to a proposed amendment of the constitution, Dr. Lafleur, who received the fourth highest number of votes, would serve for the duration of Dr. Levy's remaining term since Dr. Levy was elected to the vice-presidency.

3. MEMBERSHIP

Dr. Froese reported that through the effort of Dr. E. Potworowski a total of 33 new members (29 elected and 4 students) were admitted into the Society (Appendix A). The membership of students was tentative, subject to the approval of this membership category later during the meeting. Four members resigned, one died and 14 were deleted from the membership list due to non-payment of dues for three or more years.

4. FINANCIAL REPORT

Dr. Froese presented an audited financial report for the year ending May 31, 1978 (Appendix B) as well as an interim report for the financial year ending May 31, 1979 (Appendix C).

During the discussion it was suggested that a larger portion of the C.S.I. cash reserves be invested for short periods of time in order to realize greater returns. Dr. Froese agreed to look into this matter.

5. AMENDMENTS TO THE CONSTITUTION

Amendments dealing with the purpose of the Society (Article II), election, and term of office of councillors (By-law IV, Section 9g) as well as the introduction of student membership were considered (By-law I, Sections 1, 7, 8; By-law II, Section 1, 2).

MOTION: That all the amendments be approved as circulated.

MOVER: M. Wainberg SECONDER: A. Sehon CARRIED

6. MEMBERSHIP FEES

Dr. Froese reported that the C.F.B.S. has decided to raise the 1980 levy for full members to \$20.00 and that for associate members to \$15.00. The student member levy is to remain at \$5.00.

Dr. Froese also reported that Council had recommended that the C.S.I. dues for the new category of student members be \$3.00 and that they also be charged the I.U.I.S. levy of U.S. \$2.00.

MOTION: That the recommendation of Council be approved.

MOVER: P. Dent SECONDER: B. Cinader CARRIED:

7. INTERNATIONAL CONGRESS OF IMMUNOLOGY 1986

Dr. Paraskevas reported on the background and indicated that the C.S.I. had been urged to organize an International Congress in the near future. A poll of members in the Toronto and Montreal (the only two cities where such a congress could be held) areas had indicated support by over 80%. A call for volunteers had led to a better response from members in the Toronto area and as a consequence, Council decided to hold the Congress in that city. Dr. Cinader was asked to act as Chairman of a Provincial Local Committee and an initial organizing meeting had been held. Dr. Cinader reported that at a meeting of the I.U.I.S. in Israel, he had extended an unofficial invitation to hold the 1986 Congress in Canada (the official invitation has to come from the NRC). Support by the U.S. Immunologists (AAI) was shown by withdrawal of their own invitation.

8. INTERNATIONAL REPRESENTATION OF CANADIAN SCIENTIFIC SOCIETIES: N.R.C. vs. ROYAL SOCIETY OF CANADA

Dr. Paraskevas reported that at the suggestion of the Federal Government a move was underway to have the Royal Society instead of the N.R.C. represent Canadian Scientific Societies at the international level. He also indicated that the majority of C.F.B.S. Board Members was against this change and that the C.S.I. Council had voted to strongly oppose this move.

It was also pointed out that the help of the N.R.C. was of utmost importance in organizing international meetings, and that with the 1986 Congress to be held in Canada it would be in the C.S.I.'s interest not to have a change in representation.

Dr. Sehon pointed out that in the event that the N.R.C. should no longer help to organize such congresses, a private firm (such as Congress Secreteriat in Montreal) would be engaged.

Finally, the meeting agreed to support Council in its move to have the N.R.C. retain international representation.

9. COMMITTEES

Dr. Paraskevas reported that Council had set up two committees:

1. Program Committee: Drs. N.R. St.C. Sinclair, Convenor
A. Cunningham
L. Lafleur
L. Pilarski
2. Committee on clinical laboratory immunology: Drs. F. Paraskevas, Convenor
P. Dent
J. Falk
W. Prusanski
J. Shuster

In an ensuing discussion Dr. Paraskevas reported on Symposia to be organized by the C.S.I. and Dr. Sehon suggested that C.S.I. once again be responsible for the C.F.B.S. Symposium. He also suggested that the C.S.I. approach commercial firms with the request that they consider sponsoring an award lecture (similar to the Ayerst Award in Biochemistry).

During the discussion on clinical laboratory immunology, it was pointed out that many positions in immunology laboratories are not staffed by immunologists. Some members suggested that the C.S.I. become involved in certifying Clinical Laboratory Immunologists, while others rejected the idea. Finally, it was recommended that the new committee look into such licencing or certification.

In a discussion on co-operation with other organizations having an interest in immunology, it was suggested by Dr. Sehon that the C.S.A.C.I. be approached about holding overlapping meetings with the C.F.B.S. Dr. Paraskevas indicated that for the past two years, discussions with the C.S.A.C.I. had been going on and that Symposia of interest to members of this Society had been organized by the C.S.I. at C.F.B.S. meetings. This practise is to be continued.

Dr. Paraskevas also pointed out that common ground with nephrologists, rheumatologists etc. should also be explored.

10. SCIENCE POLICY COMMITTEE

It was agreed that Dr. A. Greenberg be the new C.S.I. representative on the Science Policy Committee of the C.F.B.S. Dr. J. Gordon is to be his alternate.

11. INCORPORATION OF THE C.S.I.

It was reported by Dr. Paraskevas that the C.S.I. had retained the services of a lawyer who is preparing the application for incorporation with the Ferderal Government. So far satisfactory progress has been made.

MOTION: That the Council be empowered to proceed with the application for incorporation.

MOVER: J. Gauldie SECONDER: S. Dubiski CARRIED

12. ADJOURNMENT

There being no further business the meeting was adjourned at 6:30 P.M.

CHANGES IN MEMBERSHIP 1978-79Synopsis

<u>NEW MEMBERS</u>	33
Elected	29
Associated	0
Student (tentative)	4
<u>DEATHS</u>	1
<u>RESIGNATIONS</u>	4
<u>DELETIONS</u>	14

Changes in Membership Status

- (a) From ELECTED to EMERITUS (proposed): A. Borduas
- (b) From ASSOCIATE to ELECTED: B.S. Samagh
- (c) ELECTED NEW MEMBERS:
- | | | |
|-------------------|----------------|-------------------------|
| J.R. Baldwin | J. Bray | B.E. Chechik |
| J.A. Denburg | F. Decary | H.M. Dosch |
| J.M. Dupuy | D. Gibson | R.M. Gorczynski |
| M.I.C. Gyongyossy | M. Harth | J. Herbert |
| K.A. Karim | R.H. Khan | R.L. Kogrud |
| P.V. Lala | C. Lazur | R.M. Lewkonja |
| P. Montambault | S. Montplaisir | V.N. Nigram |
| R.E. Petty | G.B. Price | J.C. Rode |
| B.H. Sabiston | C.R. Stiller | J.A. Teodorczyk-Injeyan |
| J.A. Wakkary | | |
- (d) STUDENT NEW MEMBERS:
- | | | |
|----------------|-------------|-------------|
| L.L. Blackwood | T.L. Nusair | M. Paquette |
| D. Vergidis | | |
- (e) DECEASED MEMBERS: M. Epp

CANADIAN SOCIETY FOR IMMUNOLOGY

FINANCIAL STATEMENT
FOR THE YEAR ENDING
May 31, 1978

CASH IN BANK	
Beginning of Year	<u>\$5,078.70</u>

RECEIPTS	
Membership Dues	\$9,160.02
Bank Interest	22.68
Other Revenue	95.65
	<u>\$9,278.35</u>
	<u>\$14,357.05</u>

DISBURSEMENTS	
Speakers and Travel	\$1,169.65
Secretarial Services	232.15
Bulletin and Journals	549.35
Office Supplies	184.72
Postage	133.99
Youth Science Foundation	75.00
Perey Award	100.00
C.F.B.S. Levy	6,106.00
I.U.I.S. Levy	502.16
Aid to Graduate Students	63.00
Service Charges	7.00
Returned Cheques	37.00
Audit	100.00
Petty Cash on Hand	3.20
	<u>\$9,263.22</u>

CASH IN BANK	
End of Year	<u>\$5,093.83</u>

We have examined this statement of receipts and disbursements of the Society, for the year ending May 31, 1978, and have found it to agree with the records of the Society and to represent accurately the financial transactions of the Society.

Signed at Winnipeg, Manitoba
December 14, 1978

"B.G. CARTER"
B.G. Carter, Ph.D.

"A. GREENBERG"
A. Greenberg, Ph.D.

CANADIAN SOCIETY FOR IMMUNOLOGY

INTERIM FINANCIAL STATEMENT

FOR THE YEAR ENDING
MAY 31, 1979

Cash in Bank, Beginning of Year	\$ 5,093.83
------------------------------------	-------------

RECEIPTS

Membership Dues	8,085.08
Bank Interest	31.50
Other Revenue	140.99
Petty Cash on Hand	<u>3.20</u>
	\$ <u>8,260.77</u>
	\$ 13,354.60
	<u>=====</u>

DISBURSEMENTS

Speakers and Travel	\$ 1,109.59
Secretarial Services	46.38
Journals	61.97
Office Supplies	14.23
Postage	267.89
Youth Science Foundation	75.00
Perey Award	50.00
C.F.B.S. Levy	3,979.00
I.U.I.S. Levy	441.72
Aid to Graduate Students	230.00
Bank Service Charges	1.50
Symposia	1,500.00
Printing and Xeroxing	189.96
Return Cheques	36.60
Overpayment of Dues	26.00
1986 Congress of Immunology (Organization)	44.88
Petty Cash on Hand	<u>1.08</u>
	\$ <u>8,075.80</u>

Cash in Bank, End of Year	\$ 5,278.80
	<u>=====</u>

MEMBERSHIP ANNOUNCEMENTS

1. Student Membership

At the 1979 Annual Meeting in Vancouver, the CSI approved the new membership category of STUDENT MEMBER.

Student members will be subject to low membership dues of only \$10.40, compared to \$32.40 for full members and \$27.40 for associate members. Student members will also be able to take advantage of reduced subscription rates for various journals; they will, however, not be eligible to present papers in their own right at CFBS meetings.

Please bring this information to the attention of graduate students who may be interested in joining the CSI.

2. "Lost Members"

A number of members whose names and last known addresses appear below, can no longer be reached under these addresses. Anyone knowing the whereabouts of these individuals please contact Dr. A. Froese, Dept. of Immunology, University of Manitoba, 730 William Ave., Winnipeg, Manitoba R3E 0W3.

Mr. Robert Ikeman
McGill Cancer Res. Unit
McGill University
3655 Drummond St.
Montreal, P.Q. H3G 1Y6

Dr. L.A. Robb
355 St. Clair Ave. West
Toronto, Ont.
M5P 1N5

Dr. A.L. Jackson
Kent Laboratories
1292 Franklin St.
Vancouver, B.C. V6A 1K1

Dr. J.A. Teodorczyk-Injeyan
The Wellesley Hospital
160 Wellesley St. East
Toronto, Ontario M4Y 1J3

Dr. P.R. McConnachie
Tissue Typing Lab.
Univ. of Alberta Hospital
Edmonton, Alta.

Mr. D. Vergidis
Dept. of Immunology
845 Medical Sciences Bldg.
University of Alberta
Edmonton, Alta. T6G 2H7

INCORPORATION OF THE CSI

At its General Meeting in 1978, the CSI decided to become incorporated with the Federal Government. In taking this step, the CSI was following a trend which was set by the Canadian Federation of Biological Societies (CFBS). Some other member societies of the CFBS are also moving in this direction or have already done so.

Incorporation of the CSI as a non-profit-making organization has two main advantages: (1) It opens the way for the society to accept tax-deductible donations and to issue the appropriate receipts, and (2) the executive and members will no longer be personally liable in case of financial losses by the Society. The latter point is particularly important if the CSI wishes to organize major international meetings which can always wind up with a deficit.

To achieve its objective, the CSI has retained the services of a lawyer. The first task was to reserve the name of our Society with the Department of Consumer and Corporate Affairs in Ottawa. This proved to be a major stumbling block. Thus, it turned out that the Canadian Society for Allergy and Clinical Immunology was already incorporated and federal officials considered our Society name too similar to that of the CSACI. Immunology became a problem. Even after the CSACI informed Ottawa that its membership had no objection to the incorporation of the CSI under its present name, did the name remain unacceptable. However, finally it became possible to convince officials in Ottawa that our Society could in no way drop the word Immunology. The name was accepted.

Now things are moving rapidly and smoothly. A new constitution (By-Law No. 1) has been drawn up and submitted to Ottawa for approval in principle. It was accepted without any alterations. Once it is translated into French, a formal application for incorporation will be submitted.

In drawing up the new by-law, the CSI executive tried to use as much as possible of the existing constitution. Therefore, it is fairly certain that the day-to-day operation of the Society will not change. Only at Council and General Meetings will it be necessary to adhere to some new formalities.

TOWARDS A CANADIAN POLICY FOR

RESEARCH AND DEVELOPMENT

The forthcoming election offers a new opportunity to persuade candidates of the need for a national Canadian science policy. At this stage, the most important political step involves the development of processes by which short - and long - term national goals for scientific and industrial research and development can be identified and by which a mechanism for consideration and implementation can be developed. We should discuss this problem with the candidates, ensure their support and -- if possible -- elicit a public statement of support for the development of a mechanism to arrive at a science and industrial policy.

The last six months have seen important changes in the programmes of Canada's major political parties: all of them advocated increased investment in Scientific and Technological Research and have incorporated this in their political programmes. The Progressive Conservative Party committed itself to a goal of 2.5% of gross national income, thus exceeding the announced intention of the Liberal government to increase R and D expenditure to 1.5%. Mr. Clark, as Prime Minister, reaffirmed his party's resolution on the increased investment in R and D: research and development was to receive 2.5% of the gross national income. The budgetary provisions and the 5-year plan for NSERC, released by Mr. Heward Grafftey on 1 November 1979, are among the encouraging indications that the Conservative Government intended to implement these proposals. So far, visible attempts have not been made to translate Liberal or Conservative target figures into a policy for which appropriate long term objectives and manpower needs are identified and plans are prepared, whereby the needed manpower would be generated. To this end, it is necessary to create a process whereby defined technological goals and areas of investment would be selected. It is clear that such a process requires not only discussion of what is desirable, but also an analysis of what is feasible and involves a selection of areas for mission-oriented, technological, applied and fundamental research. At the same time, we need to broaden the base for curiosity-oriented research, i.e., for research which is not targeted and arises from peripheral initiatives. Ultimately, we must create organs of funding for mission-oriented work, whether it be pilot plant development or fundamental research in centrally selected areas. It must be the goal of the scientific and technological community to initiate a dialogue with politicians which will lead to structures for the determination of Science Policy and, next, to the implementation and continuing review of that policy. Processes of scrutiny and implementation should not await the completion of the entire plan. We must not repeat the error of the period during which the enquiry, which ultimately led to the Lamontagne report, provided an excuse for immobility in science planning, while awaiting the recommendations of the report!

It is most important that the discussion of National Research and Development targets should involve politicians at all levels of deliberation, and should involve Ministers at the top levels of the discussion. Only if the process of political and scientific-technical scrutiny go hand in hand, can we hope to develop a National Science and Industrial Policy which will be sufficiently embedded in the political process, and sufficiently well understood by the political spokesmen of the community, to become part of our national life and of our common aspirations for Canadian development.

In the scientific and technological community, there is wide agreement that there should be support for science and most people recognize that this entails a science policy. There is some divergence of views, as to boundaries and methods by which Science policy should be formulated. Some scientists and some historians of science feel that the historic development of science, which occurred with very little external regulation and depended on imaginative leaps of individuals, was the only safe method for the future development of science. Some advocates of this view even feel that planning would hamper imaginative research and, therefore, oppose planned research, even in applied areas, perhaps to avoid a contagious spread of the planning process.

Irrespective of the merits of these fears, it must be recognized that scientific developments of the first two centuries of the scientific era have led to an escalation of research costs. These developments have created a network of ascertained facts and of theories which reflects a continuing increase in sophistication. As a consequence, research has become more and more expensive and, thus, more dependent on governmental support. This support can only be provided by subjecting research expenditures to budgetary planning processes. These, in turn, cannot be undertaken without relatively well-defined objectives. It is often overlooked, that for a long time, in all countries, and certainly in Canada, there has been a component of mission-oriented and planned research in parallel with curiosity-oriented research. The former is regulated by subject selection and often by very detailed supervision; the latter is dependent on approval by peer review and, ultimately, on the money allocated by Government to Research Councils. The issue is not, whether or not there is to be a science policy, but how this policy is to be developed.

In Canada, much of mission-oriented research is carried out in government institutes and most of the curiosity-oriented research in Universities. The boundaries between these two areas are blurred; some applied research is going on in Universities and some pure research in government institutes which, in fact, produced the only Canadian Nobel laureate of the last two decades. The processes, by which mission-oriented research is being supported by government, are multifocal and uncoordinated; targets are defined locally, say within a particular ministry such as National Health & Welfare, but are not defined or coordinated centrally. The Ministry of Science and Technology did not acquire the capacity for meaningful participation in this process. As a consequence of this absence of a central, i.e. national, science policy, different government departments made decisions which affected some research activities in opposite directions. Research policy was discontinuous and underwent rapid fluctuations which interfered with organic growth of both pure and applied research. Some of these fluctuations threatened to destroy areas of achievement. Sudden drives of economy led to reductions in the budgets of individual government departments. These cuts were disproportionately channelled into research areas for which the affected government department had sole responsibility. This might be illustrated by the cuts of less than 1% made in the budget of National Health & Welfare, which resulted in a cut of 20% of the external research budget of that department: the establishment protected its in-house activities, as far as possible, by directing the cuts to areas outside the inner core. This was particularly devastating in the area of health care delivery, since the Canadian Government does not have an Institute to serve this type of research. Canada relies on the University to serve as the National Health Institute "without walls", but it was not identified and protected, as such, by its Government department. It is clear that there is a need for checks and balances by which funding fluctuations can be moderated, controlled and channelled. Clearly, there is a need for a policy against which the impact of fiscal measures could be assessed. This need is not limited to periods of recession, but is equally great during periods of expansion. In short, there is a requirement for some central, coordinating and assessing capacity.

A shell of a structure, for such a capacity, exists in the Ministry of Science & Technology. However, this shell has, so far, not acquired a structure which confers on the Ministry the capacity to anticipate or

exploit novel opportunities, or to detect damaging decisions, respond to them rapidly, and prevent them. In order to function creatively, the Ministry of Science & Technology must acquire a "sensory" capacity, by which it can detect important developments and a "cortical" capacity, by which it can judge opportunities, desirability and feasibility, in the Canadian context. To initiate the acquisition of these capacities, it will be necessary to set up a grid of advisory committees, consisting of scientists, engineers and industrialists, who could help to formulate a science and industrial policy and allow the government to employ this policy as a tool for long term national development. Since science enters into the sphere of most government departments, the Ministry responsible for the planning and execution of science policy, must exercise a coordinating as well as an initiating function. To fulfill these functions, the Ministry must acquire the capacity to survey a large range of activities, including operations affecting natural resources, ecology and industry, and to be cognizant of new opportunities arising from recent discoveries. It must also be able to ascertain, quickly, expert opinion, in order to react to developments and decisions in other Departments and Ministries. One could give numerous examples of fundamental discoveries, events of international politics, agricultural changes and new industrial processes which affect science policy. The Ministry of Science & Technology must, therefore, create a machinery by which it can swiftly detect such changes and react to them; in short, it must be able to assess plans for scientific and industrial development and to generate them. In addition, it must be able to detect perturbations, which repeatedly occur in scientific technological evolution and in the surrounding economic climate.

For all these purposes, broad guidelines should be generated by a committee of the Ministry of Science & Technology, consisting of politicians, civil servants, industrialists, scientists, engineers, political economists and town planners. In this committee, areas would be identified, in which Canadian opportunities and challenges are perceived; it would be desirable for this committee to subject such guidelines to a variety of tests for their economic, political and resource implications. It is also essential that the committee should subject its individual recommendations to the scrutiny of a whole series of expert sub-committees which would assess areas, selected for attention. The subcommittees should be drawn from the working community of scientists, agriculturists, engineers, industrialists and economists. The process of initiation, scrutiny and, finally, planning, should involve an inter-party committee of Parliament, since decisions would have long term implications and effects which are likely to outlast any government, however durable.

I have already indicated that I see the structure of advisory committees deeply imbedded in the scientific and industrial community and that I do not propose a substantial increase in the bureaucratic machinery of government, itself. In other words, detailed policy formulation, feasibility studies and coordination of activities should be carried out by advisory committees, consisting of fairly large numbers of experts, who remain in their respective communities. Each committee would have one civil service member, who would report to and maintain contact with a coordinating Committee of the Ministry. I can illustrate this by describing the committee structure for one particular purpose, identification of novel industrial projects, which could serve to create a uniquely Canadian industry of biologicals. The committee would consider recent fundamental biological discoveries, which are seen to have potential for the creation of a new branch of industry.

It would identify biological processes which could go into pilot-plant development and would have those examined by an appropriate sub-committee of biologists, engineers and economists. Other biological processes might be identified as being near, but not at the point of, pilot development. This second group of processes would be entrusted to another sub-committee which would make recommendations for a crash programme of mission-oriented, fundamental research or which might implement means of monitoring future developments for reassessment after a given period. One could clearly give a large number of other examples, but the problem remains the same, namely, to utilize the advice of the community in generating scientific and technological research and development.

It goes without saying that this process need not only be employed by the Ministry of Science and Technology. The many other Ministries and departments which are generating scientific programmes now, and will continue to do so, could also benefit from such a process. All of them are already seeking outside advice, with varying degrees of effectiveness. What is proposed here, is that consultation should be systematized, intensified and coordinated. In short, the Ministry of Science & Technology needs to depend on community participation and has yet to find its organizational form and an adequate mode of action. It, therefore, requires that the Minister of Science & Technology should have no other major commitments. He should be able to devote himself solely to the creation and implementation of an adequate structure and then to the application of this structure to the formulation of an adequate and flexible policy for scientific and technical development. It was, therefore, most gratifying, that Canada finally had a full time Minister of State for Science and Technology during the last months of the Conservative Government. We need to assure that all parties should commit themselves to a full-time Minister of State for Science and Technology.

One need not stress that curiosity-oriented research will remain the most important basis for the generation of fundamentally new, industrial processes. The growth of applied and industrial research depends on a concomitant growth of fundamental, curiosity-oriented research. Once a machinery exists, which permits government to experience and thus to recognize the impact of applied research, one would hope that the importance of fundamental research would be seen as the basis for the continued flow of novel development. The existing Federal Granting Councils' responsibility for fundamental research would continue; their task would remain to support the most original and inventive research and help universities and industry to attract the most inventive and original investigators. The Councils, in charge of fundamental research, should not be centrally involved in applied research, since different rules, different criteria and different end products are required in the two areas. Special funding mechanisms for applied activities, for pilot plant development etc. will have to be evolved between government and the private sector. The existing Councils might initially remain responsible for the support of targeted areas of fundamental research which would emerge from identification of long term National research and development objectives. It is important that such identified areas should receive special and separate budgetary provisions, so as not to distort the activity of Councils in the area of peripherally generated research proposals.

The experience of planning a science policy, as part of a long term national policy, would affect the perception of all those involved,

including politicians, who would participate in the selection of targets. This experience would help politicians to understand the potential national role of applied research and, ultimately, of "pure" research. The latter would not only be seen as an area, dear to academics and desirable for the prestige of Universities, but would be recognized as the base of knowledge and skill acquisition, from which all applied areas are fed and developed. In short, one needs to initiate a process by which industrial innovation and applied research are defined by long term national objectives, can be refined through processes of model building and of projections of future supplies in raw materials and international and national demands for them. The process of determining their attainability, and of choosing, ultimately, the paths by which the scientific components of national objectives can be achieved, will clearly have an important formative effect on our vision of Canada and will help us develop our National aspiration for the future.

BERNHARD CINADER

COSTS OF RESEARCH

The scenario of Canada's poor performance in research and development (R & D) is painfully familiar to everyone involved in research in this country. Canada's R & D/GNP has declined from a high of 1.29% in 1967 to about 0.9% in 1978, and current estimates for 1979 indicate the R & D/GNP will be less than 0.9%. The expression of R & D expenditures as a percentage of the GNP does not allow a direct comparison of the actual cost of the R & D. Table I summarizes the total Canadian expenditure on R & D (including private enterprise) and the actual Federal Government expenditure on scientific activities (SA) from 1971 to 1978.

TABLE 1¹ : Total R & D Expenditures² and Federal Government Expenditures on Scientific Activities (SA) from 1971 to 1978.

Year	Total R & D Expenditures			Federal Government R & D Expenditures		
	Current \$	1971 ³ \$	R&D/GNP	Current \$	1971 \$	SA/Fed. Budget
1971-	1161.9	1161.9	1.23	808.9	808.9	4.7
72-	1184.4	1128.0	1.12	862.8	821.7	4.5
73-	1279.6	1116.6	1.04	942.2	822.2	4.0
74-	1472.3	1114.5	1.00	1032.1	781.3	3.4
75-	1666.0	1139.5	1.01	1122.8	768.0	3.2
76-	1775.5	1106.9	0.93	1250.9	779.9	3.1
77-	1998.3	1165.2	0.95	1354.8	790.0	3.1
78-	2177.6	1192.6	0.94	1457.1	798.0	3.1

¹ Source: Annual Review of Science Statistics. Statistics Canada, CAT 13-212 Annual.

² Millions of dollars.

³ Current \$ adjusted with the GNE price index.

These data emphasize that research, as with our everyday lives, has been caught in the 'inflation squeeze'; however, research expenditures have not done as well as our salaries in keeping up with inflation. Total R & D expenditures, in current dollars, on scientific activities increased from 808.9 to 1457.1 (about 80%) over the same time period. When adjusted for inflation (using the GNE price index), however, the increase in R & D expenditures was only 2.6% and Federal Government scientific activities actually decreased about 1.4%. Considering that grants for support of University research are a Federal Government scientific activity, it is not difficult to understand why Canadian University researchers feel 'squeezed' financially! For example, the Natural Sciences and Engineering Research Council (NSERC) budget, in 1971 dollars, increased from \$58 million in 1977-78 to \$63 million in 1978-79. The Medical Research Council (MRC) budget showed a very slight increase from \$34 million to \$35 million

(in 1971 dollars) between 1977-78 and 1978-79.

It must be emphasized that the dollar deflation factors used in deriving the above figures are based on the Implicit Price Index of the gross national expenditure (IPI-GNE). The choice of the IPI-GNE as a deflation factor for research costs is erroneous for two reasons. First, the total research budgets of the NSERC and the MRC (about \$370 million combined 1978) comprise a very small portion of the GNE (\$232,800 million in 1978). Therefore, price fluctuations for goods and services used in research would have only a minor effect on the IPI-GNE factor. Second, the great majority of cost movements making up the Implicit Price Index are irrelevant to science activities. The index is derived by calculating annual increases in some 300 items of typical Canadian expenditure grouped under several major aggregations: personal expenditure on consumer goods and services; government current expenditure on goods and services; gross fixed capital formation (including farm and grain in commercial channels, and export of goods and services minus imports of goods and services).

These IPI-GNE categories are for the most part quite unrelated to those used to construct a specialized cost-of-research index, such as NRC's Research Expenditure Index (NRC-RE). The NRC used actual grant expenditure data to determine precisely how much was spent by grantees on salaries and stipends for post-graduate students; salaries and stipends for post-doctoral assistants; salaries for other assistants (research associates, technicians, summer students, etc.); minor equipment (less than \$5,000 and \$75,000); major equipment (between \$75,000 and \$150,000); travel; computing services; publications; conferences; science promotion; international exchanges, etc. Cost increases for each of these expenditure items during fiscal year 1973-74 were then determined using the appropriate Statistics Canada price index.

TABLE II: Comparison of Price Indices used as Science Deflators¹ (index points with 1969-70 = 100)

Year	NRC-RE ²	SEPI ³	IPI-GNE	CPI ⁴
1969-70	100	100	100	100
1970-71	105.5	105.5	104.2	102.6
1971-72	110.6	112.5	107.9	106.3
1972-73	117.9	121.2	113.8	111.7
1973-74	132.1	132.0	126.2	121.1
1974-75	155.4	151.7	144.1	135.0
1975-76	177.3	170.3	158.4	148.5
1976-77	203.2 ⁵	190.1	174.2	159.0
1977-78	228.5 ⁵	212.0 ⁵	188.5 ⁶	171.6 ⁶
1978-79	261.0 ⁵	234.0 ⁵	201.6 ⁷	184.7 ⁷

Sources

- ¹ "Conversion Factors and Levels of Funding of Science", Science Council of Canada, May 1977.
- ² The NRC-RE was derived by NRC from actual expenditure data submitted by grantees in 1973-74.
- ³ SEPI was formulated by the Science Council in 1977.

- 4 Consumer Price Index
- 5 Estimated from data in "Canadian Statistical Review", October 1978,
Statistics Canada.
- 6 Library of Parliament.
- 7 Arithmetic average of first three quarters of 1978, "Canadian
Statistical Review", October 1978.

Table II presents a comparison of various price indices used as science-cost-deflators. It is obvious that the IPI-GNE consistently under estimated the level of inflation in the scientific sector as measured by either the granting councils (NRC-RE) or by federal science expenditures (SEM). In fact, by using the NRC-RE deflation factor both the NSERC and MRC budgets, in 1970 dollars, remained nearly constant at \$44 million and \$25 million respectively between 1978 and 1979.

The federal granting agencies have prepared five-year plans designed to provide stability in funding of university based research. Although there is much controversy in the University community regarding various aspects of the five-year plans, the basic idea of longer term planning for research support is welcomed by all. If, however, the five-year plans are to provide the stability in research they are proposed to provide, it is imperative that the funding formulas used in calculating budgets of the granting councils utilize dollar deflators which reflect inflation in science items. Otherwise, the financial support for scientific research will continue to dwindle due to the staggering inflation in the prices of scientific equipment and supplies.

In considering the cost of research, it is necessary to understand how research dollars are spent. The MRC, in the 1978-79 Report of the President, has itemized the average expenditures of MRC grantees. Sixty-six percent of the MRC grant dollars are spent on personnel; 83.8% of the personnel costs support technicians and professional assistants, 14.4% supports student trainees and 1.8% covers other personnel costs. Twenty-one percent of the grant dollars are spent on laboratory supplies of which chemicals comprise 46.5% of the supply costs, glassware 21.8%, drugs 1.1%, photographic and electronic supplies 6.4%, and minor equipment 5.12%. Five percent of the grant dollars are spent on laboratory animals, 6% on services and publication costs, and 2% on travel. Major equipment purchases do not appear on the MRC cost-breakdown; perhaps this gives some insight into the reasons for the deplorable condition of scientific equipment in University laboratories today!

There are many additional costs of research which are not supported by research grants directly. These include salaries for principle investigators, construction and maintenance costs for facilities (laboratories, libraries, offices, etc.), heating and electrical costs, and research management and clerical support staff. The MRC five-year plan, which is not yet approved by the Federal Government, indicates that these costs account for about 45% of the estimated \$180 million spent on health sciences research by the MRC, other agencies and Universities in 1977. The Universities provided over 90% of the investigators' salaries,

100% of facility costs and other overhead, 11% of the research training costs, and 87% of management costs.

This cost breakdown emphasizes an important point: Although the majority of the support for research operating funds is derived from research grants from governments and other agencies, the Universities support a large portion (45%) of research costs indirectly, that is, not on a specific project basis. The funds for Universities are obtained from the Provincial Governments who receive these funds, in part, through fiscal arrangements payments from the Federal Government. This system of financial support requires optimal federal-provincial co-operation! Should the question not be raised, whether this system of research support is in dire need of review or not?

There are other hidden costs to research, some of which cannot be adequately evaluated at this time due to lack of data. The peer review system is judged by most to be a 'tried and true' system for awarding research grants and assuring high quality research. No data are available regarding the manpower costs associated with the peer review system, although these costs would be substantial considering the large number of highly qualified man-hours involved.

One hidden cost of research that can be evaluated is related to Customs and Excise Tariff items which apply to materials, supplies and equipment imported into Canada. Tariff Item 69605-1 allows a specific group of organizations, including universities, free entry for certain goods which would otherwise enter under various other tariff items, usually dutiable. It encompasses largely finished, fully assembled, manufactured goods, sub-assemblies of such goods, and parts for repair or replacement. Tariff Item 69610-1 provides free entry for articles and materials for use exclusively in the manufacture of the goods enumerated in Item 69605-1.

Generally, duty-free entry under 69610-1 benefits domestic manufacturers while exemption from duty under 69605-1 benefits end-users. Imported scientific apparatus and parts entering in 1977 under 69605-1 totalled \$180.8 million placed into 4 major aggregations: professional and scientific equipment, \$110.1 million; electrical and other machinery and equipment, \$35.1 million; chemical and pharmaceutical preparations and surgical supplies, \$26.7 million; and, projection apparatus, photographic equipment and exposed film, \$8.9 million.

In addition to exemption from duty under Items 69605-1 and 69610-1, qualifying beneficiaries are entitled to exemption from Federal Sales Tax (FST) on the enumerated goods, under the provisions of Part VII of Schedule III of the Exise Tax Act. This FST exemption is provided not only with respect to imported goods but also for the same goods manufactured domestically, viz. Canadian-produced goods, which if they were imported, would be classified under 69605-1 or 69610-1. Assuming that the maximum price benefit realized by qualifying beneficiaries is the sum of the duty and FST otherwise payable, Tariff Board has estimated that institutions saved \$38.3 million in 1977 under Item 69605-1 (Table III).

TABLE III: Benefits From Imports Under 69065-1 By Types of Institutions, 1977 (\$Millions)

Universities	14.39
Federal Government	11.62
Public Hospitals	4.65
Provincial Governments	2.87
Community Colleges	1.80
Elementary and Secondary Schools	1.43
Religious Organizations	0.60
Public Museums	0.19
Public Libraries	0.09
Other	0.65

Of the various factors affecting the cost of research, inflation is the most critical at this time. Economic inflation not only directly affects the operating costs involved in research (i.e., equipment costs, materials and supplies, etc.) but also profoundly affects the salaries of the research personnel. Sixty-six percent of the MRC grant funds support salaries, and investigators' salaries account for 29% of the total funds spent on health services research. The impact on research costs is indeed large since research is such a labour intensive industry.

The costs of research can only be put in perspective when the benefits derived from the research are considered. The benefits of research are usually evaluated intuitively, and an economic analysis would be extremely difficult. Studies to obtain the required data for such an analysis have been initiated by the Economic Council of Canada. The results of this study will be reported when the analysis is complete.

January 3, 1979

Robert F. Willes, Ph.D.
Executive Secretary for Science
Policy
Canadian Federation of Biological
Societies.

THE ARMAND-FRAPPIER INSTITUTE

There has always been a fair amount of confusion connected with the Armand-Frappier Institute, particularly on the subject of its place of insertion in the health education system. This confusion is best illustrated by the endless variety of "affiliation" appearing on the name tags of the Institute's Scientist at different meetings. In this brief note, I will attempt not only for my own sake and that of my unfortunate colleagues from the Institute, but also for the sake of the scientific community at large, to dissipate some of this undeserved confusion.

In the past 40 years, the Institute has changed its name four times, and moved once, so that confusion certainly has some basis.

Founded by Dr. Armand Frappier in 1938, the Institute was called Institut de Microbiologie et d'Hygiène de Montréal. It was located in the old buildings of the University of Montréal. Its fourfold objectives from the very beginning were the production of biological products, research and teaching as well as services to the community. This was first centered around BCG but soon expanded to viral vaccines and other biological products. Characteristically, therefore, immunology began at the Institute as an offshoot of Microbiology. The Institute's staff and that of the department of Microbiology of the University of Montréal were the same, as were the laboratories; Dr. Frappier was director of both, so that the Institute changed its name in 1942 to become Institut de Microbiologie et d'Hygiène de l'Université de Montréal and was located on the present campus of the University, on the mountain. Soon however, the available space became insufficient, particularly when a large primate colony had to be maintained for the production of polio vaccine. Furthermore, work on cattle was being carried out and some historical photographs I found in the Institute's archives show technicians marching calves through the University's "Hall d'honneur" - clearly a difficult situation both for the University as well as for the Institute! A farm was therefore purchased in what was then the country but is now the Montreal suburb of Laval. First, the animals moved there in the early 1960's followed by the rest of the Institute in 1966. From the very beginning, the Institute and the University, though sharing space and staff, had been two entirely separate organizations. This did not cause any major difficulties so long as all the activities took place "on campus". With the move to Laval, however, choices had to be made. A number of scientists stayed behind, others moved. Of the latter, those who had a university appointment at U. of M. continued to hold it and an informal arrangement was arrived at whereby they could supervise graduate students registered at U. of M. but working at the Institute. As years went by however the two Institutions drifted further apart even though friendly

relations continued to flourish. In 1972 the Institute reverted to its original name dropping "de l'Université". Slowly the number of scientists holding dual appointments decreased. In 1972 the Institute became one of the 10 constituents of the Université du Québec. As such, the Institute, by virtue of its new charter, could now establish its own teaching programs and grant its own degrees. To pay homage to the retired founding director, the name of the Institute became Institut Armand-Frappier in 1975. The original four complementary objectives established by Dr. Frappier in 1938 were still pursued but in a new context: five research centers were formally established in Virology, Immunology, Bacteriology, Veterinary Medicine and Epidemiology. The production activities of the Institute were regrouped under a new organization "Institute Armand-Frappier Production" inspired by the Institute Pasteur-Production. Two graduate programs were established in virology: an MSc program and a PhD program, the latter jointly with the U. of M.

Meanwhile, in immunology, the establishment of a fully autonomous graduate program was judged to be premature and a mutually satisfactory agreement with McGill University now permits graduate students to work with five Institute immunologists who have associate member status in experimental medicine at McGill. The Immunology Research Center is still growing: at present it has seven staff members, eight graduate students, four post-doctoral fellows and there are two vacant staff positions to be filled at the time of writing, in human and murine immunogenetics. The possibilities to do meaningful research at the IAF are certainly unique, not only because of the better than average physical set up but because of the relatively light teaching load, the interaction with colleagues from connected disciplines, and the access, through diagnostic and production units, to human material, not the least of which will be the blood fractionation center to be opened within two years.

Edouard Potworowski

CERTIFICATION IN MEDICAL LABORATORY IMMUNOLOGY

The American Board of Medical Laboratory Immunology (ABMLI), created one year ago and sponsored by the American Academy of Microbiology, announced recently, the Certification of the first group of Diplomates in medical laboratory immunology.

In the United States, Board-certified immunologists, regardless of whether or not they possess an MD degree, are adjudged competent to direct laboratories engaged in the practice of medical laboratory immunology. Of the twenty diplomates who successfully met academic and experimental requirements and passed both written and oral examinations to become certified, there were 12 PhD's, 5 MD's and 3 MD, PhD's.

Applications for the ABMLI Spring 1980, Part I (Written) examination, currently, are being accepted. To be eligible for examination, the minimum requirements include an earned Doctoral degree (PhD, MD, Dr.PH or other doctorate acceptable to the Board) and four (4) years of post-doctoral training and experience with increasing responsibility in the field.

Further information and Applications may be obtained from:

The American Board of Medical Laboratory Immunology
c/o The American Society for Microbiology
1913 EYE Street N.W.
Washington, D.C.
20006

Telephone: (202) 833-9680

LOGO DESIGN: With INTERNATIONAL CONGRESS OF IMMUNOLOGY--TORONTO, 1986

Representing, as it did, one of the major achievements of molecular immunology, the structure of the immunoglobulin molecule has served well as the symbol of immunology for the last fifteen years.

The LOGO, designed for the 1st International Congress of Immunology in 1971, incorporated the interactions of lymphocytes with the immunoglobulin molecule. The time has now come, to find a LOGO which foreshadows, or summarises, other developments; perhaps something that refers to cellular differentiation, major histocompatibility locus controls.....

This LOGO is needed for the letterhead, posters, programmes etc. and, perhaps, for a souvenir medal, for the 1986 Congress. Suggestions and designs will be gratefully received and may be sent to:

Dr. B. Cinader
University of Toronto
Medical Sciences Building
Toronto, Ontario M5S 1A8

NEW JOURNALS

Journal of Immunopharmacology (Published by Marcel Dekker Inc.)

Publishes clinical studies and research results in the area of immunopharmacology. Categories of manuscripts include invited reviews, full papers and brief communications. Book Reviews are also featured. Reproduction is by direct photography to facilitate rapid communication.

INSTRUCTIONS TO AUTHORS may be obtained from:

The Executive Editor: Alan M. Reynard, PhD
Department of Pharmacology and Therapeutics
SUNY School of Medicine, Buffalo, New York, 14214.

International Journal of Immunopharmacology (Published by Pergamon Press Ltd.)

Publishes original scientific papers which interrelate immunology and pharmacology. The main emphasis is on full length research reports but both short and preliminary communications are also included. In addition, topical editorials, commentaries, prospective reviews and hypotheses are featured and provision is made for the publication of a limited number of letters relating directly to articles published previously in the journal.

Topics included: -Clinical studies involving immunotherapeutic agents
-Use of drugs as tools in investigating the immune response
-Development of immunologically based assays for drugs
-Use of antibodies as pharmacological tools and therapeutic agents
-Immunotoxicology
-Pharmacological studies of the effects of lymphokines

INSTRUCTIONS TO AUTHORS may be obtained from:

The Editor: P.W. Mullen
Department of Pharmacology, Materia Medica and Therapeutics
Stopford Building, University of Manchester, England

The Editorial Board of the journal, with the sponsorship of the publishers, is organising the First International Conference on Immunopharmacology, to be held at the University of Sussex, Brighton, July 30 - August 1, 1980. (See List of Scheduled Meetings). The theme of the conference will conform to the scope and aims of the journal and will include lectures and workshops in the areas mentioned above.

MEETINGS AND CONFERENCES

THE 13TH INTERNATIONAL LEUCOCYTE CULTURE CONFERENCE

Report

The first of this series of conferences was held in Washington, D.C. in 1965. The next was held the following year in Montreal; it was organized by Barbara Bain and her colleague, the late Dr. L. Loewenstein. Thereafter, this conference alternated between the United States and Canada until 1973 when it moved to Uppsala; alternation is now de facto between a site in Europe or Israel and in North America. The 13th Conference took place in Ottawa, May 22nd-25th, 1979 and was attended by 450 registered members; an additional 150 people attended a special one day symposium on the molecular biology of cell activation. The special symposium was made possible by a grant from the Medical Research Council of Canada. Speakers were: Rick Steinhardt (activation of sea urchin eggs), Art Pardee ("Can a fibroblast teach a lymphocyte anything useful?"), Keith Porter (cytoskeleton), Larry Loeb (Infidelity of DNA replication, mutagenesis and carcinogenesis), Bob Perry (RNA synthesis and processing in myeloma cell lines), Lou Siminovitch (analysis of somatic mutations), Gérard Buttin (hybridomas in the analysis of antibody diversity), Len Herzenberg (monoclonal antibodies and the fluorescence-activated cell sorter). The goas of this symposium was to permit comparison of the lymphocyte with other activable and metastable cell systems.

During the other three days of the Conference, there were 18 major speakers, who discussed a variety of aspects of recent research in the fields of biochemistry and immunology of lymphoid and adherent cells; among those who presented major papers were Av Mitchison, Klaus Resch, Fritz Bach, Ita Askonas, and our Canadian colleagues Hardie Cinader, Alec Schon and Erwin Gelfand. 250 posters were selected for presentation; they were grouped into 20 subject areas, of which the most popular were target cell lysis and natural killers, biochemistry, soluble factors and mediators, membranes and receptors, suppression and cell-cell interactions. Another important activity consisted of late afternoon and evening workshops of which there were 24; attendance at these surpassed all expectations. The major social event was an all Beethoven concert and reception at the National Arts Centre. Minor mangling of the Emperor Concerto by soloist and orchestra was happily overlooked in the general bonhomie and good cheer engendered by the open bar.

Twenty-seven major presentations, about 90 invited minipapers and 20 workshop summaries have now appeared under the title "The Molecular Basis of Immune Cell Function" (J.G. Kaplan, ed.), Elsevier/North Holland, Amsterdam, 781 pp., 1979. This volume, intended as a state of the art report, will be the more valuable for having appeared within five months of the Conference. I was aided in the organization of the 13th International Leucocyte Culture Conference by a committee consisting of Don Forsdyke (Queen's), Martin Jerry (Calgary) and Al Boynton (N.R.C. Ottawa); much of the credit for the success of the meeting goes to them and to our Executive Secretary, Ken Charbonneau, Director of the N.R.C. Conference Services, and his marvelous team of co-workers.

The 14th International Leucocyte Culture Conference (K. Resch and H. Kirschner, organizers) will be held in Heidelberg in 1981; there will be none in 1980 owing to the coincidence in Europe of the Fourth International Congress of Immunology and of the Second International Congress of Cell Biology. The 15th (R.L. O'Brien and J. Parker, organizers) will be held in the Los Angeles area in 1982 and the 16th will be organized in Oxford by N. A. Mitchison.

J. Gordin Kaplan
Department of Biology
University of Ottawa

Announcements

International Symposium of the Canadian Society for Immunology
GENETIC CONTROL OF NATURAL RESISTANCE TO INFECTION AND MALIGNANCY
under the auspices of

The Montreal General Hospital Research Institute and the
Faculty of Medicine, McGill University

Montreal, March 18-20, 1980

The topics of natural resistance to infection and malignancy have been the subject of great interest to immunologists in the last few years. Natural resistance is defined as the ability of a host to resist infection by an otherwise pathogenic organism or to destroy tumor cells in the absence of any previously acquired specific immunity. It seems that although acquired immunity may be an important determinant of host survival in the interaction with an infectious agent or with a cancer cell, natural immune mechanisms play a vital role in allowing a host to survive long enough to mount an effective immune response. Natural resistance systems are of broad biological significance since they involve rather common mechanisms of resistance against microbes, tumors and foreign cells and the investigation of these processes is of prime importance. One of the most exciting approaches to this problem has been the genetic one. Using inbred animals, where genetic backgrounds are identical and other variables can be controlled, it has been recently demonstrated that natural resistance to a variety of offenders is under genetic control. In general, these genes are not linked to the major histocompatibility locus and it appears that they do not control specific immune responsiveness.

The Symposium evolved from the perceived need to gather all interested investigators in the field of natural resistance to ascertain whether one may be witnessing the action of the same (or similar) genetic system in