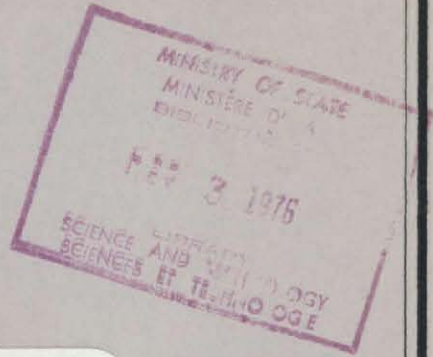


C.1



SOME COMMENTS
 ON A BRIEF FROM THE
 ASSOCIATION OF BIOLOGY
 CHAIRMEN OF CANADA

DECEMBER 22, 1975 ⁴ (report) no. 105
 rapport n°. 105



Canada

Ministry of State

Ministère d'État

Science and
Technology

Sciences et
Technologie

Research and
Information
Services

Services de
recherche et
d'information

QH
 320
 .C3
 G88



Canada

1 Ministry of State

Ministère d'État

2 for Science and Technology

Sciences et Technologie

3 Research and Information Services

Services de recherche et d'information

QH
320
C3688 c.1

SOME COMMENTS
ON A BRIEF FROM THE
ASSOCIATION OF BIOLOGY
CHAIRMEN OF CANADA

DECEMBER 22, 1975 ⁴ (report) no. 105
rapport n°. 105

35290

Library
Ministry of State
Economic and Regional Development
Science and Technology
Bibliothèque
Département d'État
Développement économique et régional
Sciences et Technologie

prepared for / préparé pour DR. A. DESMARAIS

by / par *R. Guttormson*

R. Guttormson

approved by / approuvé par *R. Guttormson*



SOME COMMENTS ON A BRIEF FROM THE
ASSOCIATION OF BIOLOGY CHAIRMEN OF CANADA
RESEARCH AND INFORMATION SERVICES

These comments confine themselves to the accuracy and appropriateness of the numerical data contained in pages 4 through 10 of the brief.

The first point to make is that while there are a number of errors in the data as presented they do not materially affect the conclusions as presented in this portion of the brief.

Each paragraph in the brief will be considered in turn.

Page 4, paragraphs 1 and 2.

Here and throughout the brief a single year is used to designate a fiscal year. Thus 1974 is used to indicate fiscal year 1973-74. However, this is not always done correctly and in table 1a, upon which the statements in this paragraph are based, 1974 refers to 1973-74 and in table 1b it refers to 1974-75.

Figures for 1974-75 for table 1a are given in table A2.6 on page 89 of Federal Scientific Resources #4. The total for all bio-oriented research in 1974-75 as indicated in that table is \$117.0 million which would increase the total at the bottom of table 1 to \$170.0 million. Note that the collection of data on R&D by field of science has been discontinued for intramural R&D by Statistics Canada as it was not considered appropriate. This data is now collected for R&D carried out in universities - more on this point below.

The figures in table 1b are taken from the Information Exchange Centre (IEC) Directory as indicated. Two problems arise here; first, not all awards are reported to the IEC and second, for all departments and agencies other than the Medical Research Council, the Department of National Health and Welfare and the International Development Research Centre only those grants deemed by the Association to be appropriate to the life sciences have been included. With respect to the first point, the most recent survey of Federal Science Activities by Statistics Canada indicates that in 1974-75 the Medical Research Council provided \$40.4 million to Universities for Scientific Activities, \$39.1 million of that for R&D. Similarly the funds provided by Health and Welfare amount to \$14.3 million for total scientific activity and \$13.3 for R&D.

As mentioned above, in the most recent survey, Statistics Canada collects data on university funding by field of science. Data on the life sciences is subdivided, in the survey, into Biology, Clinical Medicine and Other. Unfortunately these subdivisions are useless, as the MRC reports their research expenditures for 1974-75 as \$13.0 million for each of the three sub-categories and the National Research Council reports all of the \$15.5 million devoted to life sciences as "other".

Federal funding of University Research in the
Life Sciences

Department or Agency	1973-74	1974-75	1975-76
	(\$ millions)		
Agriculture	0.8	0.6	1.4
AECL	0.1	0.2	0.1
Environment	1.4	1.6	1.4
IAND	0.2	0.2	0.2
IDRC	0.1	0.1	0.2
MRC	36.7	39.1	44.3
National Defence	0.5	0.5	0.4
National Health & Welfare	13.1	13.2	12.8
NRQ	16.0	15.5	18.3
Supply and Services	-	-	0.1
TOTAL	68.9	71.0	79.2

In the above table the figures for 1975-76 do not reflect the June budget cuts. All grants, contracts and scholarships programs are included and thus the \$16.0 million figure for the NRC for 1973-74 is not comparable with the less than \$11 million (\$10.5 million) mentioned in the second last line of page 4 of the report which includes only operating grants, equipment grants and travel fellowships.

Regarding the second point mentioned above, that only selected grants are included in table 1b of the report, Attachment 1 prepared by the STARI group in April of this year on just this topic shows another interpretation. Though the data are for 1973-74 instead of 1974-75 a comparison will indicate the magnitude of the effects that can be ascribed to the selection process.

Page 6, paragraph 1.

The figures in this paragraph and in table 2 are, as far as they go, largely correct. There are, however, two difficulties with the data as presented. First, the data presented in table 2 are extracted from a table which expresses research and development activity in terms of application and not field of science. These two parameters are not parallel although there is a correlation. An examination of Table 22 on page 37 of Federal Scientific Resources #4 from which this data is taken reveals that the entry for Applied bioscience is made up exclusively of Agriculture, Forestry and Fisheries ignoring totally the significant biology-relevant amounts which may well reside hidden within Manufacturing Industry, Northern Development or Developing Countries to name three. Further if one were to examine the list of applications for Applied Chemistry (chemoscience?) one would find no category that would fit.

Ignoring the above point, however, we find that \$113.2 million that is ascribed to applied bioscience is greater than for such worthy causes as Medical Science, Mineral Location and Extraction, Pollution and a host of others. Further they point out that the \$12.4 million granted by the NRC biology selection committees represents 1.7% of the total. This may be true, but that figure above is meaningless. They provide no standard by which this figure can be measured. Would their argument look any different if the figure were 0.85% or 3.4%?

Page 6, paragraph 2

Concerning unsolicited proposals; of the 300 received since April 1, 1973, 22 have been from Biology or Biology-related university departments. Of these, 5 have been approved for a total of \$324 thousand, 5 are still pending and the other twelve have not been approved as unsolicited proposals although some possibly are being directly funded by the government departments concerned. The main reason for rejection was that the proposals did not fit in with departmental objectives.

Page 7, last paragraph

The figures given in this paragraph are correct.

Page 8, last paragraph

According to the most recent survey by Statistics Canada the NRC expects to distribute \$77.9 million to universities for scientific activities in 1975-76, the MRC expects to distribute \$45.6 million and the Canada Council \$23.0 million in the same period. These figures were decreased by approximately \$2.7 million, \$1.0 million and \$1.0 million respectively by the June budget cuts. The reduced figures are used in the following table.

Percentage increase in payments to Canadian
universities from indicated year to 1975-76

	1963-64	1967-68	1970-71	1972-73	1974-75
NRC	543.3	75.1	21.0	17.9	14.1
MRC	891.9	146.2	49.2	26.7	10.5
Can. Council			57.1	39.0	11.0

Page 9, last paragraph

The research price index used in this paragraph is not sanctioned by any official body, but it is recognized that the effect of inflation on the purchasing powers of the research dollar is serious and that the figures used here are not too far off the mark. Note that the argument would be just as valid if there were, say, a 25% decrease in purchasing power rather than the 41% quoted.

Page 10

The figures quoted on this page are largely correct.

ESTIMATE OF SUPPORT OF RESEARCH IN THE LIFE SCIENCES
EXCLUDING MEDICINE BY THE FEDERAL GOVERNMENT, BY DEPARTMENT
1973/74
TAKEN FROM THE
"DIRECTORY OF FEDERALLY SUPPORTED RESEARCH IN UNIVERSITIES"

<u>DEPARTMENT</u>	<u>TOTAL</u>
Agriculture	493,640
Defence Research Board	153,300
Energy, Mines and Resources	5,800
Environment (Atmospheric Environment Service)	52,558
Environment (Fisheries Service)	218,480
Environment (Canadian Wildlife Service)	139,286
Environment (Canadian Forestry Service)	79,550
Environment (Water Resources Research)	170,505
Indian Affairs and Northern Development	391,849
International Development Research Centre	56,775
Medical Research Council	4,287,332
Ministry of State for Urban Affairs	250
National Health and Welfare (Non-Medical Use of Drugs)	22,356
National Health and Welfare (Health)	490,301
National Research Council of Canada	10,963,789
TOTAL	17,525,771

Relevance of grants to life sciences is determined from the University department name. Some examples of departments included or excluded are given below:

<u>Included</u>	<u>Excluded</u>
Agriculture	Medicine
Agricultural Engineering	Pathology
Nutrition	Immunology
Soil Science by Dept. of Agric.	Veterinary Medicine
Home Economics (sometimes)	Agricultural Economics
Microbiology	Anthropology
Bio physics	Psychology
Bio chemistry	Behavioral Science
Genetics	Medical Microbiology
Home Economics	Oral Biology
Food Sciences	Bacteriology
Crop Science	Bio medical Sciences
Plant Science	Environment
Animal Science	Microbiology/Immunology
Environmental Biology	
Poultry Science	
Animal Husbandry	
Forestry	

The "Directory of Federally Supported Research in Universities" is also available for 1972-73.

LISTING OF UNSOLICITED PROPOSALS SUBMITTED BY THE UNIVERSITY SECTOR
WHICH INVOLVE BIOLOGY OR ASPECTS THEREOF.

COVERING THE PERIOD FROM APRIL - DECEMBER, 1975

UP NO:	SUBMITTING UNIVERSITY	PROJECT TITLE	FUNDING INVOLVED	DATE UP REC'D	ACCEPTED (A) REJECTED (R)
UP-A-45	Alberta	Risk Evaluation of Environmental Mutagens by Testing on Forward-mutation Systems of <i>Saccharomyces Cerevisiae</i>	\$69,237.	31.7.75	(A)
UP-B-32	British Columbia	Biological Control of Conifer Seed Predation in the Deer Mouse (<i>Peromyscus maniculatus</i>)	\$ 5,000.	14.4.75	(R)
UP-C-73	Concordia	Science, Technology and Environmental Studies Project	\$ 4,800.	26.6.75	(R)
UP-D-30	Halhousie	A Comprehensive Management model for the Canadian East Coast Fisheries	\$67,150.	23.4.75	(A)
UP-G-19	Guelph	Energy Ratios in Food Protection	\$175,004.	9.4.75	(R)
UP-G-17	Guelph	Safe Re-Entry Periods and Insecticides for Use on Minor Crops	\$11,653.	8.4.75	(R)
UP-G-21	Guelph	Interrelationships of Upper-Trophic Level Species in the Bay of Fundy	5-year project \$194,088. (Total)	22.4.75	(R)
UP-C-33	Guelph	Heterogeneous Model Systems for Cathodic Catalysis	\$32,737.	22.9.75	(R)
UP-Mc-11	McGill (MacDonald Campus)	The Control of Red-Winged Blackbird Populations Damaging Corn Crops	\$79,200.	2.4.75	(A)
UP-Mc-16	McGill (McDonald Campus)	Medical Hazard of Codworm in Canada	\$114,447.	3.7.75	(R)
UP-O-28	Ottawa	Investigation of Possible Mercury Contamination in Hospital Environment and its Effects on Nursing Care	\$ 7,500.	30.7.75	(R)
UP-S-54	Saskatchewan	Ecological Studies in the Subarctic Caribou Range N.W.T.	\$126,179.	11.6.75	(R)
UP-S-57	Saskatchewan	A Study of Interactions Between Ingested Lead, Iron & Lead Iron Shot and Certain Important Infectious Diseases of Waterfowl.	\$45,630.	7.7.75	(R)
UP-T-17	Toronto	A Study of the Evaporation Rates of Spills of Hazardous Liquids	\$16,110.	14.4.75	(R)
UP-W-40	Waterloo	Analysis of Hydrometric and Water Quality Data for Non-Stationarity and Effect of Human Activity	\$200,000.	11.6.75	(R)
UP-W-41	Waterloo	The Control of Spruce Budworm with Juvenile Hormone Analogue: The Effects of the Juvenile Hormone Analogue on Reproduction of the Spruce Budworm	\$22,340.	14.7.75	(A)

UP'S UNDER REVIEW:

UP-G-37	Guelph	A Comparison of Agents to Stabilize Bovine Leukocytes During Transport	\$16,198.	8.12.75
UP-L-28	Lakehead	The Effects of Elevated Temperatures on the Life Cycle of Brook Trout (<i>Salvelinus fontinalis</i>)	\$60,723.	3.12.75
UP-Q-8	Queen's	Population Studies and Mortality Estimates in Snow Geese	\$286,948.	28.11.75
UP-W-43	Waterloo	Oxychlorination of Organic Pollutants	\$73,092.	11.12.75

Prepared by:

John M. St. Louis
December 17, 1975

