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SCIENTIFIC RESEARCH

Inquiry—Debate Continued

Speech by:

The Honourable Claudette Tardif

Thursday, November 26, 2009

THE SENATE

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SCIENTIFIC RESEARCH

INQUIRY—DEBATE CONTINUED

On the Order:

> Resuming debate on the inquiry of the Honourable Senator Cowan calling the attention of the Senate to the critical importance of scientific research to the future of Canada and to the well-being of Canadians.

Hon. Claudette Tardif (Deputy Leader of the Opposition): Honourable senators, Senator Day told me that he would like the debate to stand in his name.

Honourable senators, scientific research and, consequently, post-secondary education are very important to Canadians. A recent Ipsos Reid poll estimates that 78 per cent of Canadians believe that post-secondary education is necessary to advance in the work world.

According to the Association of Universities and Colleges of Canada:

> Developing the best-educated, most skilled workforce possible and unleashing Canadians' capacity for ideas, innovation and inventiveness are the surest means to promote long-term productivity, economic growth and prosperity.

Honourable colleagues, this depends in large measure on investments in scientific research.

The research conducted by our Canadian researchers benefits our communities. If we take a moment to think about Canadian scientific achievements, we realize that we have much to be proud of. Where would we be if Banting and Best had not discovered insulin, if the research by Dr. Tak Wah Mak of the University of Toronto had not led to a better understanding of our immune system, or if John Alexander Hopps, who is known the world over as the inventor of the first cardiac pacemaker and the "father of Canadian biomedical engineering", had not been able to conduct his research? The country where we live would not be the same. In fact, the world as we know it would not likely be the same.

Through scientific research, we can help Canadians. Honourable senators, that is why I am speaking today to Senator Cowan's inquiry calling the attention of the Senate to the critical importance of scientific research to the future of Canada and to the well-being of Canadians.

• (1540)

[*English*]

As my colleague Senator Cowan indicated in his inquiry on March 31, the fundamental question is: "What is our vision of Canada for the 21st century? Do we want to be a nation that pushes the frontiers of knowledge where Canadians are encouraged to think big and imagine new solutions?" To do so, we need to invest massively in the post-secondary system, in innovation and scientific research.

[*Translation*]

I would like to be able to tell you that all is well in the world of scientific research. Unfortunately, my meetings with a number of researchers have lead me to believe that this is not so. Funding for scientific research in Canada does not match researchers' needs.

At a critical juncture in our history, when the economy requires investments of billions of dollars, this government, which says it is listening to Canadians, does not seem to be listening to the concerns of our scientists.

[*English*]

The United States surpasses Canada in terms of general research funding. According to Dr. John Hylton, Canada spends "1.9 per cent of its GDP on science funding," whereas President Obama announced in 2009 that under his administration the U.S. would "devote more than 3 per cent of GDP to research and development," and he was referring to its current GDP. President Obama seems to be harmonizing the scientific research funding goals of the U.S. with those set out by the European Union in what is known as the "Lisbon target," the objective of which is to make R&D expenditure 3 per cent of GDP.

What effects will insufficient funding have on scientific research in this country? Honourable senators, it will discourage scientific research and prevent Canada from taking its place among the world's scientific leaders. Without proper funding, Canada's research and innovation capacity will continue to fall behind that of other countries. According to the OECD, "In 1995 Canada and China's total expenditures on R&D were at virtually the same level, and Canada invested more than twice as much in university research. By 2007, China was spending more than four times as much as Canada overall, and had surpassed Canada in funding university research."

Based on a recent study by Thompson Reteurs, the Association of Universities and Colleges of Canada estimates that by 2020 India's research productivity will have surpassed that of the G8 countries. The AUCC further notes that, "India's government increased its higher education budget by 40 percent this year." If Canada wants to be a scientific research leader it must act now.

While preparing my research for this inquiry, I had the privilege of meeting with several established researchers as well as new researchers in the field of medical research at the University of Alberta. The purpose of our meeting was to discuss the state of research funding in Canada, and more particularly scientific and medical research funding. These researchers indicated their grave concerns with the current state of research funding.

They indicated that the structure to create a vibrant and important research and development sector in Canada currently exists. However, without proper funding and support, the framework cannot operate to its full potential.

Insufficient support for scientific research has a negative effect on our young researchers, who are tempted to further their academic studies and conduct their research in other countries where funding is more abundant. The insufficient funding of our scientific research community will make it difficult for us to keep

the best and the brightest of these students, who will instead wish to pursue their research in another country where funding is more readily available.

Referring to graduate students in a recent article in *The Hill Times*, Arvind Gupta notes:

> . . . lack of R&D industrial investments limits opportunities for graduate students who want to stay in Canada. We have a classic chicken and egg problem: Fewer R&D jobs means students are not incented to pursue graduate work. Those who persevere, too often, leave the country in search of better opportunities.

Insufficient funding not only affects our young researchers but also affects international students who decide to pursue their academic studies in our country. In a press release issued on October 28, 2009, the Department of Foreign Affairs and International Trade evaluated the economic contributions of foreign students in Canada at $6.5 billion. The Association of Universities and Colleges of Canada notes that the students "who remain in Canada help provide the skilled graduates needed to enhance our economic performance and address the upcoming demographic crunch." These students contribute immensely to our scientific research community, and we should do everything in our power to attract a greater number of them.

Insufficient funding also affects our performance on the world stage in terms of the number of academics and researchers our country produces. A recent article in *The Gateway*, the University of Alberta's official student newspaper, reminds us that, "Canada produces the fewest Ph.D's per capita of almost all our OECD peers." In fact, the Canadian Council on Learning notes in its 2008-09 report that, "Canada ranked twentieth out of 30 OECD countries in the proportion of science and engineering degrees relative to all new degrees. Canada also ranked twentieth in the proportion of Ph.D graduates in science and engineering."

[*Translation*]

In its 2009 budget, the government gave priority to funding for the physical infrastructure of our post-secondary institutions. In recent months, there has been a proliferation of press releases from the Minister of State for Science and Technology on investments in science and technology faculties at universities.

Although this government focussed on investments in knowledge infrastructure in the 2009 budget, to build new laboratories and renovate research facilities, there is not enough money to fund the staff required to do research in these laboratories.

[*English*]

As Senator Cowan noted, "Our job as policy-makers is to build and maintain a strong foundation that allows this research to thrive. This requires modern physical infrastructure, but it also demands funding for the research itself. It makes no sense to build state-of-the-art laboratories at the expense of funding research that is to take place within them."

[*Translation*]

The three major research councils have the same problem. A few weeks ago, the Leader of the Government in the Senate informed us that her government had increased the number of student scholarships. According to the Canadian Federation of Students, the 2009 budget cut $148 million from the three major research councils. A University of Alberta researcher said that researchers find themselves in a vicious circle. The increase in scholarships has resulted in more students applying for research positions but, given that the government has cut funding for the research councils, the researchers do not have the funds required to continue their work.

• (1550)

[*English*]

In the words of one of the researchers I met at the University of Alberta,

> . . . it appears that they —

— the government —

> — are using a "rob Peter to pay Paul" approach.

He notes that:

> . . . the funds for the scholarships and CFI, Canadian Foundation for Innovation, programs will be obtained by "streamlining" budgets for NSERC (Natural Sciences and Engineering Research Council of Canada), CIHR (Canadian Institutes of Health Research), and SSHRC (Social Sciences and Humanities Research Council).
>
> Compared to our American and West European colleagues, funding for these agencies is already too low. For CIHR at least, the success rates for the Open Grants Program are below 22 per cent.

That used to be at 30 per cent. That means there are a full 8 to 10 per cent of candidates, very meritorious candidates, who are not being funded for their applications for their research programs.

> This is unsustainable and will lead to a decline in the quality of research. By eroding the base budgets for NSERC, CIHR and SSCHRC, there will be less funding available for scholarship students to carry out their research projects. In addition, much of the CFI-funded equipment and other infrastructure will sit unused because of a lack of operating funds to carry out experiments.

These are the words of researchers who are involved in the projects now. That is why, in the pre-budgetary consultations submission given to the Minister of Finance, the Honourable James Flaherty, the Association of Universities and Colleges of Canada, AUCC, recommended to:

> . . . significantly increase investments in university research through the three federal research granting agencies. Increases of $400 million in each of the next two years should be followed by increases of $228 million, $249 million and $270 million in the subsequent three years. . . .

[*Translation*]

What is more, the government seems to be focussed more on funding programs related to business and management than any other university program.

Honourable senators, may I have five more minutes?

The Hon. the Speaker: Honourable senators, do you wish to grant Senator Tardif another five minutes?

Hon. Senators: Agreed.

Senator Tardif: At least, that is what it says in a message from the president of the Canadian Federation for the Humanities and Social Sciences dated January 28, 2009.

[*English*]

In a March 2 article in *The Globe and Mail*, Dr. Andrew Weaver is quoted as saying that governments have always had a say in research, but this is getting down to micromanagement.

He further notes that now the government is cutting the basic research funding system and also stipulating what they can do. The government seems to be ordering more and more the direction of research in this country.

Another problem with the funding of scientific research in Canada is the way through which research funding is allocated. In fact, the government should look at the approach taken by other G8 countries, more particularly at how other countries deal with the indirect costs of research funding.

For example, in the United Kingdom and the European Union, indirect research funding costs are covered at a 40 to 60 per cent level by the national government. Closer to home, our neighbour to the south seems to agree with the European approach.

According to the Canadian Association of Research Libraries, CARL:

> . . . the U.S. level of funding through its indirect costs support is evaluated at 40% to 70% of the value of the direct research funding costs.

Canadian investments in indirect research funding are embarrassingly low when compared to those in the United States. It is partly for this reason that the Canadian Association of Research Libraries recommends that:

> . . . the federal government increase funding for the indirect costs of research from the current 23.3 per cent of direct research funding, to 40 per cent.

If this government implemented CARL's recommendation, the state of scientific research in Canada would greatly improve.

One example of indirect research funding is investments in specialized research libraries such as the Canada Institute for Scientific and Technical Information, CISTI. Part of the National Research Council of Canada, CISTI provides access to up-to-date information for scientists and medical researchers across the country. CISTI is known nationally as a library of last resort for high-quality scientific research data. Unfortunately, proposed cuts to this pillar of science would jeopardize this important organization's role in scientific research.

The government was well aware of the negative impact that these cuts would have on scientific research in Canada. In March 2009, Leslie Weir, then president of the Canadian Association of Research Libraries, wrote to the Prime Minister that the National Research Council's Canada Institute for Scientific and Technological Information was:

> . . . expecting cuts of up to 50% of its current budget, with an additional 20% removed from cost-recovery programs.

Mr. Weir was pleading in defense of CISTI, a specialized research library which has been our national science library for the last 50 years. The president of the Canadian Association of Research Libraries further noted that the budgetary compressions at CISTI would have serious consequences on its ability to support Canada's researchers.

What was more alarming was Mr. Weir's warning against the possibility of Canada becoming a scientific and technological "branch plant" to the United States and Europe because of the poor state of investments in scientific research.

The term "branch plant" was first brought to the attention of Canadian researchers 40 years ago. As Heather Munroe-Blum, Principal and Vice-Chancellor of McGill University, notes, the term defined an:

> . . . economic situation in which Canada provided raw materials for industries around the world to use to their advantage . . .

— and where —

> . . . research and development, the "high-end" work, was done closer to the "home office" — usually in another country.

Without proper scientific research funding, Canada risks becoming a branch plant.

[*Translation*]

In conclusion, honourable senators, scientific research in Canada is more than a matter of funding. We must also consider the lack of coherence at the post-secondary education level in Canada.

[*English*]

The former national science adviser, Dr. Paul Carty, noted that:

> . . . the Conservative government has put a lot of money into science infrastructure, but its overall approach to research is something of "a puzzle."

[*Translation*]

Dr. Paul Cappon, President and Chief Executive Officer of the Canadian Council on Learning, recently told the Standing Senate Committee on Social Affairs, Science and Technology that Canada's problem is its lack of a national strategy on post-secondary education.

As I said a few months ago, "more than one third of research conducted in Canada takes place at Canadian universities. In other words, this is a critical sector, fundamental to maintaining and building the Canada we all want — a Canada that is at the forefront of innovation, creativity and productivity in the world."

(On motion of Senator Tardif, for Senator Day, debate adjourned.)